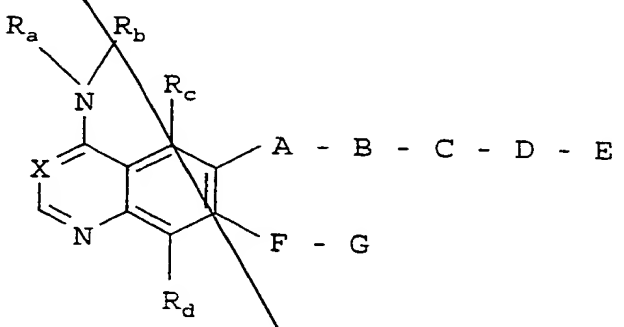
Patent Claims

1. Bicyclic heterocycles of general formula



, (I)

wherein

R_a denotes a hydrogen atom or a C_{1-4}-alkyl group,

R_b denotes a phenyl, benzyl or 1-phenylethyl group wherein the phenyl nucleus is substituted in each case by the groups R_1 to R_3, whilst

R_1 and R_2, which may be identical or different, in each case denote a hydrogen, fluorine, chlorine, bromine or iodine atom,

a C_{1-4}-alkyl, hydroxy, C_{1-4}-alkoxy, C_{3-6}-cycloalkyl, C_{4-6}-cycloalkoxy, C_{2-5}-alkenyl or C_{2-5}-alkynyl group,

an aryl, aryloxy, arylmethyl or arylmethoxy group,

a C_{3-5}-alkenyloxy or C_{3-5}-alkynyloxy group, wherein the unsaturated moiety may not be linked to the oxygen atom,

a C_{1-4}-alkylsulphenyl, C_{1-4}-alkylsulphinyl, C_{1-4}-alkylsulphonyl, C_{1-4}-alkylsulphonyloxy, trifluoromethylsulphenyl, trifluoromethylsulphinyl or trifluoromethylsulphonyl group,

a methyl or methoxy group substituted by 1 to 3 fluorine atoms,

an ethyl or ethoxy group substituted by 1 to 5 fluorine atoms,

Sub A3

a cyano or nitro group or an amino group optionally substituted by one or two C_{1-4}-alkyl groups, wherein the substituents may be identical or different, or

R_1 together with R_2, if they are bound to adjacent carbon atoms, denote a -CH=CH-CH=CH, -CH=CH-NH or -CH=N-NH group and

R_3 denotes a hydrogen, fluorine, chlorine or bromine atom,

a C_{1-4}-alkyl, trifluoromethyl or C_{1-4}-alkoxy group,

R_c and R_d, which may be identical or different, in each case denote a hydrogen, fluorine or chlorine atom, a methoxy group, or a methyl group optionally substituted by a methoxy, dimethylamino, diethylamino, pyrrolidino, piperidino or morpholino group,

X denotes a methine group substituted by a cyano group or a nitrogen atom,

A denotes an oxygen atom or an imino group optionally substituted by a C_{1-4}-alkyl group,

B denotes a carbonyl or sulphonyl group,

C denotes a 1,3-allenylene, 1,1 or 1,2-vinylene group which may be substituted in each case by one or two methyl groups or by a trifluoromethyl group,

an ethynylene group or

a 1,3-butadien-1,4-ylene group optionally substituted by 1 to 4 methyl groups or by a trifluoromethyl group,

sub A3

D denotes an alkylene, -CO-alkylene or -SO_2-alkylene group wherein the alkylene moiety in each case contains 1 to 8 carbon atoms and additionally 1 to 4 hydrogen atoms in the alkylene moiety may be replaced by fluorine atoms, while the linking of the -CO-alkylene and -SO_2-alkylene group to the adjacent group C in each case must take place via the carbonyl or sulphonyl group,

a -CO-O-alkylene, -CO-NR_4-alkylene or -SO_2-NR_4-alkylene group wherein the alkylene moiety in each case contains 1 to 8 carbon atoms, whilst the linking to the adjacent group C in each case must take place via the carbonyl or sulphonyl group, wherein

R_4 denotes a hydrogen atom or a C_{1-4}-alkyl group,

or, if D is bound to a carbon atom of the group E, it may also denote a bond,

or, if D is bound to a nitrogen atom of the group E, it may also denote a carbonyl or sulphonyl group,

E denotes an R_6O-CO-alkylene-NR_5, (R_7O-PO-OR_8)-alkylene-NR_5 or (R_7O-PO-R_9)-alkylene-NR_5-group wherein in each case the alkylene moiety, which is straight-chained and contains 1 to 6 carbon atoms, may additionally be substituted by one or two C_{1-2}-alkyl groups or by an R_6O-CO or R_6O-CO-C_{1-2}-alkyl group, wherein

R_5 denotes a hydrogen atom,

a C_{1-4}-alkyl group, which may be substituted by an R_6O-CO, (R_7O-PO-OR_8) or (R_7O-PO-R_9) group,

an ethyl or propyl group optionally substituted by one or two methyl or ethyl groups, which may be terminally substituted in each case by a C_{1-6}-alkylcarbonylsulphenyl, C_{3-7}-cycloalkylcarbonylsulphenyl, C_{3-7}-cycloalkyl-C_{1-3}-alkylcarbonylsulphenyl, arylcarbonylsulphenyl or aryl-C_{1-3}-alkylcarbonylsulphenyl group,

an ethyl or propyl group optionally substituted by one or two methyl or ethyl groups which is terminally substituted in each case by a C_{1-6}-alkylcarbonyloxy, C_{3-7}-cycloalkylcarbonyloxy, C_{3-7}-cycloalkyl-C_{1-3}-alkylcarbonyloxy, arylcarbonyloxy or aryl-C_{1-3}-alkylcarbonyloxy group,

an ethyl or propyl group optionally substituted by one or two methyl or ethyl groups, each of which may be terminally substituted by a hydroxy, C_{1-4}-alkoxy, amino, C_{1-4}-alkylamino or di-(C_{1-4}-alkyl)-amino group or by a 4- to 7-membered alkyleneimino group, whilst in the abovementioned 6- to 7-membered alkyleneimino groups a methylene group in the 4 position may be replaced by an oxygen or sulphur atom, by a sulphinyl, sulphonyl, imino or N-(C_{1-4}-alkyl)-imino group,

a C_{3-7}-cycloalkyl or C_{3-7}-cycloalkyl-C_{1-3}-alkyl group,

R_6, R_7 and R_8, which may be identical or different, in each case denote a hydrogen atom,

a C_{1-8}-alkyl group, which may be substituted by a hydroxy, C_{1-4}-alkoxy, amino, C_{1-4}-alkylamino or di-(C_{1-4}-alkyl)-amino group or by a 4- to 7-membered alkyleneimino group, whilst in the abovementioned 6- to 7-membered alkyleneimino groups in each case a methylene group in the 4 position may be replaced by an oxygen or sulphur atom or by a sulphinyl, sulphonyl, imino or N-(C_{1-4}-alkyl)-imino group,

a C_{4-7}-cycloalkyl group optionally substituted by 1 or 2 methyl groups,

a C_{3-5}-alkenyl or C_{3-5}-alkynyl group, wherein the unsaturated moiety may not be linked to the oxygen atom,

a C_{3-7}-cycloalkyl-C_{1-4}-alkyl, aryl, aryl-C_{1-4}-alkyl or R_gCO-O-(R_eCR_f)-group, whilst

R_e and R_f, which may be identical or different, each denote a hydrogen atom or a C_{1-4}-alkyl group and

R_g denotes a C_{1-4}-alkyl, C_{3-7}-cycloalkyl, C_{1-4}-alkoxy or C_{5-7}-cycloalkoxy group,

and R_9 denotes a C_{1-4}-alkyl, aryl or aryl-C_{1-4}-alkyl group,

a 4- to 7-membered alkyleneimino group which may be substituted by an R_6O-CO, (R_7O-PO-OR_8), (R_7O-PO-R_9), R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_9 are as hereinbefore defined,

a 4- to 7-membered alkyleneimino group which is substituted by two R_6OCO or R_6OCO-C_{1-4}-alkyl groups or by an R_6OCO-group and an R_6OCO-C_{1-4}-alkyl group wherein R_6 is as hereinbefore defined,

a piperazino or homopiperazino group which is substituted in the 4 position by the group R_{10} and additionally at a cyclic carbon atom by an R_6O-CO, (R_7O-PO-OR_8), (R_7O-PO-R_9), R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_9 are as hereinbefore defined and

R_{10} denotes a hydrogen atom, a C_{1-4}-alkyl, formyl, C_{1-4}-alkylcarbonyl or C_{1-4}-alkylsulphonyl group,

a piperazino or homopiperazino group which is substituted in the 4 position by the group R_{10} and additionally at cyclic carbon atoms by two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups or by an R_6O-CO-group and an R_6O-CO-C_{1-4}-alkyl group wherein R_6 and R_{10} are as hereinbefore defined,

Sub A3

a piperazino or homopiperazino group which is substituted in each case in the 4 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_9 are as hereinbefore defined,

a piperazino or homopiperazino group which is substituted in the 4 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group and additionally at cyclic carbon atoms by one or two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups or by an R_6O-CO-group and an R_6O-CO-C_{1-4}-alkyl group wherein R_6 to R_9 are as hereinbefore defined,

a morpholino or homomorpholino group which is substituted in each case by an R_6O-CO, (R_7O-PO-OR_8), (R_7O-PO-R_9), R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_9 are as hereinbefore defined,

a morpholino or homomorpholino group which is substituted by two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups or by an R_6O-CO-group and an R_6O-CO-C_{1-4}-alkyl group wherein R_6 is as hereinbefore defined,

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by the group R_{10}, while the abovementioned 5- to 7-membered rings are additionally substituted in each case at a carbon atom by an R_6O-CO, (R_7O-PO-OR_8), (R_7O-PO-R_9), R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_{10} are as hereinbefore defined,

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by the group R_{10}, while the abovementioned 5- to 7-membered rings are in each case additionally substituted at carbon atoms by two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups or by an R_6O-CO-group and an R_6O-CO-C_{1-4}-alkyl group wherein R_6 and R_{10} are as hereinbefore defined,

Sub A3

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_9 are as hereinbefore defined,

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group, while the abovementioned 5- to 7-membered rings are in each case additionally substituted at carbon atoms by one or two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups or by an R_6O-CO-group and an R_6O-CO-C_{1-4}-alkyl group wherein R_6 to R_9 are as hereinbefore defined,

a 2-oxo-morpholino group which may be substituted by 1 to 4 C_{1-2}-alkyl groups,

a 2-oxo-thiomorpholino group which may be substituted by 1 to 4 C_{1-2}-alkyl groups,

a morpholino or thiomorpholino group which is substituted in the 2 position by a C_{1-4}-alkoxy group,

a morpholino or thiomorpholino group which is substituted in the 2 and 6 position in each case by a C_{1-4}-alkoxy group,

a C_{1-4}-alkyl-NR_5-group wherein the C_{1-4}-alkyl moiety, which is straight-chained and may additionally be substituted by one or two methyl groups, is in each case terminally substituted by a

di-(C_{1-4}-alkoxy)-methyl or tri-(C_{1-4}-alkoxy)-methyl group, while R_5 is as hereinbefore defined,

a C_{1-4}-alkyl-NR_5 group wherein the C_{1-4}-alkyl moiety, which is straight-chained and may additionally be substituted by one or two methyl groups, is in each case terminally substituted by a 1,3-dioxolan-2-yl or 1,3-dioxan-2-yl group optionally substituted by one or two methyl groups, while R_5 is as hereinbefore defined,

an $R_{11}NR_5$ group wherein R_5 is as hereinbefore defined and

R_{11} denotes a 2-oxo-tetrahydrofuran-3-yl, 2-oxo-tetrahydrofuran-4-yl, 2-oxo-tetrahydropyran-3-yl, 2-oxo-tetrahydropyran-4-yl, 2-oxo-tetrahydropyran-5-yl, 2-oxo-tetrahydrothiophen-3-yl, 2-oxo-tetrahydrothiophen-4-yl, 2-oxo-tetrahydrothiopyran-3-yl, 2-oxo-tetrahydrothiopyran-4-yl or 2-oxo-tetrahydrothiopyran-5-yl group optionally substituted by one or two methyl groups,

an amino group or an amino group optionally substituted by 1 or 2 C_{1-4}-alkyl groups wherein the alkyl groups may be identical or different and each alkyl moiety may be substituted from position 2 onward by a hydroxy, C_{1-4}-alkoxy, amino, C_{1-4}-alkylamino or di-(C_{1-4}-alkyl)-amino group or by a 4- to 7-membered alkyleneimino group, whilst in the abovementioned 6- to 7-membered alkyleneimino groups in each case a methylene group in the 4 position may be replaced by an oxygen or sulphur atom, or by a sulphinyl, sulphonyl, imino or N-(C_{1-4}-alkyl)-imino group,

a 4- to 7-membered alkyleneimino group optionally substituted by 1 to 4 methyl groups,

a 6- to 7-membered alkyleneimino group optionally substituted by 1 or 2 methyl groups wherein in each case a methylene group in the 4 position is replaced by an oxygen or sulphur atom, by

an imino group substituted by the group R_{10}, by a sulphinyl or sulphonyl group, whilst R_{10} is as hereinbefore defined,

an imidazolyl group optionally substituted by 1 to 3 methyl groups,

Sub A3

a C_{5-7}-cycloalkyl group wherein a methylene group is replaced by an oxygen or sulphur atom, by an imino group substituted by the group R_{10}, by a sulphinyl or sulphonyl group, wherein R_{10} is as hereinbefore defined,

or D together with E denotes a hydrogen, fluorine or chlorine atom,

a C_{1-4}-alkyl group optionally substituted by 1 to 5 fluorine atoms,

a C_{3-6}-cycloalkyl group,

an aryl, heteroaryl, C_{1-4}-alkylcarbonyl, arylcarbonyl, carboxy, C_{1-4}-alkoxycarbonyl, $R_gCO-O-(R_eCR_f)-O-CO$, $(R_7O-PO-OR_8)$ or $(R_7O-PO-R_9)$-group wherein R_e to R_g and R_7 to R_9 are as hereinbefore defined,

an aminocarbonyl, C_{1-4}-alkylaminocarbonyl or di-(C_{1-4}-alkyl)-aminocarbonyl group or

a carbonyl group, which is substituted by a 4- to 7-membered alkyleneimino group, whilst in the abovementioned 6- to 7-membered alkyleneimino groups in each case a methylene group in the 4 position may be replaced by an oxygen or sulphur atom, by an imino group substituted by the group R_{10}, by a sulphinyl or sulphonyl group, while R_{10} is as hereinbefore defined,

F denotes a C_{1-6}-alkylene group, an $-O-C_{1-6}$-alkylene group, whilst the alkylene moiety is linked to the group G, or an

oxygen atom, whilst the latter may not be linked to a nitrogen atom of the group G, and

G denotes an R_6O-CO-alkylene-NR_5, (R_7O-PO-OR_8)-alkylene-NR_5 or (R_7O-PO-R_9)-alkylene-NR_5-group wherein in each case the alkylene moiety, which is straight-chained and contains 1 to 6 carbon atoms, may additionally be substituted by one or two C_{1-2}-alkyl groups or by an R_6O-CO or R_6O-CO-C_{1-2}-alkyl group, wherein R_5 to R_9 are as hereinbefore defined,

a 4- to 7-membered alkyleneimino group which is substituted by an R_6O-CO, (R_7O-PO-OR_8), (R_7O-PO-R_9), R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_9 are as hereinbefore defined,

a 4- to 7-membered alkyleneimino group which is substituted by two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups or by an R_6O-CO-group and an R_6O-CO-C_{1-4}-alkyl group wherein R_6 is as hereinbefore defined,

a piperazino or homopiperazino group which is substituted in the 4 position by the group R_{10} and is additionally substituted at a cyclic carbon atom by an R_6O-CO, (R_7O-PO-OR_8), (R_7O-PO-R_9), R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_{10} are as hereinbefore defined,

a piperazino or homopiperazino group which is substituted in the 4 position by the group R_{10} and is additionally substituted at cyclic carbon atoms by two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups or by an R_6O-CO-group and an R_6O-CO-C_{1-4}-alkyl group wherein R_6 and R_{10} are as hereinbefore defined,

a piperazino or homopiperazino group which is substituted in each case in the 4 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_9 are as hereinbefore defined,

a piperazino or homopiperazino group which is substituted in the 4 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group and is additionally substituted at cyclic carbon atoms by one or two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups or by an R_6O-CO-group and an R_6O-CO-C_{1-4}-alkyl group wherein R_6 to R_9 are as hereinbefore defined,

Sub A3

a morpholino or homomorpholino group which is substituted in each case by an R_6O-CO, (R_7O-PO-OR_8), (R_7O-PO-R_9), R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_9 are as hereinbefore defined,

a morpholino or homomorpholino group which is substituted by two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups or by an R_6O-CO-group and an R_6O-CO-C_{1-4}-alkyl group wherein R_6 is as hereinbefore defined,

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by the group R_{10}, while the abovementioned 5- to 7-membered rings are in each case additionally substituted at a carbon atom by an R_6O-CO, (R_7O-PO-OR_8), (R_7O-PO-R_9), R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_{10} are as hereinbefore defined,

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by the group R_{10}, whilst the abovementioned 5- to 7-membered rings are in each case additionally substituted at carbon atoms by two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups or by an R_6O-CO-group and an R_6O-CO-C_{1-4}-alkyl group wherein R_6 and R_{10} are as hereinbefore defined,

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_9 are as hereinbefore defined,

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group, while the abovementioned 5- to 7-membered rings are in each case additionally substituted at carbon atoms by one or two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups or by an R_6O-CO-group and an R_6O-CO-C_{1-4}-alkyl group wherein R_6 to R_9 are as hereinbefore defined,

a 2-oxo-morpholino group which may be substituted by 1 or 2 methyl groups,

a 2-oxo-morpholinyl group which is substituted in the 4 position by a hydrogen atom, by a C_{1-4}-alkyl, R_6O-CO-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group, wherein R_6 to R_9 are as hereinbefore defined and the abovementioned 2-oxo-morpholinyl groups are each linked to a carbon atom of the group F,

a morpholino or thiomorpholino group which is substituted in the 2 position by a C_{1-4}-alkoxy group,

a morpholino or thiomorpholino group which is substituted in the 2 and 6 positions by a C_{1-4}-alkoxy group,

a C_{1-4}-alkyl-NR_5-group wherein the C_{1-4}-alkyl moiety, which is straight-chained and may additionally be substituted by one or two methyl groups, is in each case terminally substituted by a di-(C_{1-4}-alkoxy)-methyl or tri-(C_{1-4}-alkoxy)-methyl group, wherein R_5 is as hereinbefore defined,

a C_{1-4}-alkyl-NR_5 group wherein the C_{1-4}-alkyl moiety, which is straight-chained and may additionally be substituted by one or two methyl groups, is in each case terminally substituted by a 1,3-dioxolan-2-yl or 1,3-dioxan-2-yl group optionally

substituted by one or two methyl groups, wherein R_5 is as hereinbefore defined,

Sub A3

a R_hNR_5-group wherein R_5 is as hereinbefore defined and R_h denotes a 2-oxo-tetrahydrofuran-3-yl, 2-oxo-tetrahydrofuran-4-yl, 2-oxo-tetrahydropyran-3-yl, 2-oxo-tetrahydropyran-4-yl or 2-oxo-tetrahydropyran-5-yl group optionally substituted by one or two methyl groups,

an amino group or an amino group optionally substituted by 1 or 2 C_{1-4}-alkyl groups wherein the alkyl groups may be identical or different and each alkyl moiety may be substituted from position 2 onward by a hydroxy, C_{1-4}-alkoxy, amino, C_{1-4}-alkylamino or di-(C_{1-4}-alkyl)-amino group or by a 4- to 7-membered alkyleneimino group, wherein in the abovementioned 6- to 7-membered alkyleneimino groups in each case a methylene group in the 4 position may be replaced by an oxygen or sulphur atom, by a sulphinyl, sulphonyl, imino or N-(C_{1-4}-alkyl)-imino group,

a 4- to 7-membered alkyleneimino group optionally substituted by 1 to 4 methyl groups,

a 6- to 7-membered alkyleneimino group optionally substituted by 1 or 2 methyl groups wherein in each case a methylene group in the 4 position is replaced by an oxygen or sulphur atom, by an imino group substituted by the group R_{10}, or by a sulphinyl or sulphonyl group, wherein R_{10} is as hereinbefore defined,

an imidazolyl group optionally substituted by 1 to 3 methyl groups,

a C_{5-7}-cycloalkyl group wherein a methylene group is replaced by an oxygen or sulphur atom, by an imino group substituted by the group R_{10}, or by a sulphinyl or sulphonyl group, wherein R_{10} is as hereinbefore defined, or

F and G together denote a hydrogen, fluorine or chlorine atom,

a C_{1-6}-alkoxy group optionally substituted from position 2 onwards by a hydroxy or C_{1-4}-alkoxy group,

a C_{1-6}-alkoxy group which is substituted by an R_6O-CO, (R_7O-PO-OR_8) or (R_7O-PO-R_9)-group, while R_6 to R_9 are as hereinbefore defined,

a C_{3-7}-cycloalkoxy or C_{3-7}-cycloalkyl-C_{1-4}-alkoxy group, an amino group optionally substituted by 1 or 2 C_{1-4}-alkyl groups,

a 5- to 7-membered alkyleneimino group, wherein in the above-mentioned 6- to 7-membered alkyleneimino groups in each case a methylene group in the 4 position may be replaced by an oxygen or sulphur atom, by an imino group substituted by the group R_{10}, or by a sulphinyl or sulphonyl group, while R_{10} is as hereinbefore defined,

with the proviso that at least one of the groups E, G or F together with G contains an R_6O-CO, (R_7O-PO-OR_8) or (R_7O-PO-R_9)-group or

D together with E contains an R_9CO-O-(R_eCR_f)-O-CO, (R_7O-PO-OR_8) or (R_7O-PO-R_9)-group or

E or G contains an optionally substituted 2-oxo-morpholinyl group,

a morpholino or thiomorpholino group substituted in the 2 position or in the 2 and 6 position by a C_{1-4}-alkoxy group,

a di-(C_{1-4}-alkoxy)-methyl or tri-(C_{1-4}-alkoxy)-methyl group or

an optionally substituted 1,3-dioxolan-2-yl, 1,3-dioxan-2-yl, 2-oxo-tetrahydrofuran-3-yl, 2-oxo-tetrahydrofuran-4-yl, 2-oxo-tetrahydropyran-3-yl, 2-oxo-tetrahydropyran-4-yl or 2-oxo-tetrahydropyran-5-yl-group or

E contains an optionally substituted 2-oxo-thiomorpholino group or an optionally substituted 2-oxo-tetrahydrothiophen-3-yl, 2-oxo-tetrahydrothiophen-4-yl, 2-oxo-tetrahydrothiopyran-3-yl, 2-oxo-tetrahydrothiopyran-4-yl or 2-oxo-tetrahydrothiopyran-5-yl-group,

whilst by the aryl moieties mentioned in the definitions of the abovementioned groups is meant a phenyl group which may in each case be monosubstituted by R_{12}, mono, di or trisubstituted by R_{13} or monosubstituted by R_{12} and additionally mono or disubstituted by R_{13}, wherein the substituents may be identical or different and

R_{12} denotes a cyano, carboxy, C_{1-4}-alkoxycarbonyl, aminocarbonyl, C_{1-4}-alkylaminocarbonyl, di-(C_{1-4}-alkyl)-aminocarbonyl, C_{1-4}-alkylsulphenyl, C_{1-4}-alkylsulphinyl, C_{1-4}-alkylsulphonyl, hydroxy, C_{1-4}-alkylsulphonyloxy, trifluoromethyloxy, nitro, amino, C_{1-4}-alkylamino, di-(C_{1-4}-alkyl)-amino, C_{1-4}-alkylcarbonylamino, N-(C_{1-4}-alkyl)-C_{1-4}-alkylcarbonylamino, C_{1-4}-alkylsulphonylamino, N-(C_{1-4}-alkyl)-C_{1-4}-alkylsulphonylamino, aminosulphonyl, C_{1-4}-alkylaminosulphonyl or di-(C_{1-4}-alkyl)-aminosulphonyl group or a carbonyl group, which is substituted by a 5- to 7-membered alkyleneimino group, wherein in the abovementioned 6- to 7-membered alkyleneimino groups in each case a methylene group in the 4 position may be replaced by an oxygen or sulphur atom, by a sulphinyl, sulphonyl, imino or N-(C_{1-4}-alkyl)-imino-group, and

R_{13} denotes a fluorine, chlorine, bromine or iodine atom, a C_{1-4}-alkyl, trifluoromethyl or C_{1-4}-alkoxy group or

two groups R_{13}, if they are bound to adjacent carbon atoms, together denote a C_{3-5}-alkylene, methylenedioxy or 1,3-butadien-1,4-ylene group,

and moreover by the heteroaryl groups mentioned in the definitions of the abovementioned groups is meant a 5-membered heteroaromatic group which contains an imino group, an oxygen or sulphur atom or an imino group, an oxygen or sulphur atom and one or two nitrogen atoms, or

Sub A3

a 6-membered heteroaromatic group, which contains one, two or three nitrogen atoms,

whilst the abovementioned 5-membered heteroaromatic groups may be substituted in each case by 1 or 2 methyl or ethyl groups and the abovementioned 6-membered heteroaromatic groups may be substituted in each case by 1 or 2 methyl or ethyl groups or by a fluorine, chlorine, bromine or iodine atom, or by a trifluoromethyl, hydroxy, methoxy or ethoxy group,

the tautomers, the stereoisomers and the salts thereof.

2. Bicyclic heterocycles of general formula I according to claim 1, wherein

R_a denotes a hydrogen atom,

R_b denotes a phenyl, benzyl or 1-phenylethyl group wherein the phenyl nucleus is substituted in each case by the groups R_1 to R_3, while

R_1 and R_2, which may be identical or different, each denote a hydrogen, fluorine, chlorine, bromine or iodine atom,

a methyl, ethyl, hydroxy, methoxy, ethoxy, amino, cyano, vinyl or ethynyl group,

an aryl, aryloxy, arylmethyl or arylmethoxy group,

a methyl or methoxy group substituted by 1 to 3 fluorine atoms or

R_1 together with R_2, if they are bound to adjacent carbon atoms, denote a -CH=CH-CH=CH, -CH=CH-NH or -CH=N-NH group and

Sub A3

R_3 denotes a hydrogen, fluorine, chlorine or bromine atom,

R_c and R_d in each case denote a hydrogen atom,

X denotes a methine group substituted by a cyano group or a nitrogen atom,

A denotes an imino group optionally substituted by a methyl or ethyl group,

B denotes a carbonyl group,

C denotes a 1,1- or 1,2-vinylene group which is substituted in each case by one or two methyl groups or may be substituted by a trifluoromethyl group,

an ethynylene group or

a 1,3-butadien-1,4-ylene group optionally substituted by a methyl or trifluoromethyl group,

D denotes an alkylene or -CO-alkylene group wherein the alkylene moiety in each case contains 1 to 4 carbon atoms, while the linking of the -CO-alkylene group to the adjacent group C in each case must take place via the carbonyl group,

a -CO-O-alkylene or -CO-NR_4-alkylene- group wherein the alkylene moiety in each case contains 1 to 4 carbon atoms, while the linking to the adjacent group C in each case must take place via the carbonyl group wherein

R_4 denotes a hydrogen atom or a methyl or ethyl group,

or, if D is bound to a carbon atom of the group E, it may also denote a bond

or, if D is bound to a nitrogen atom of the group E, it may also denote a carbonyl or sulphonyl group,

E denotes an R_6O-CO-alkylene-NR_5, (R_7O-PO-OR_8)-alkylene-NR_5 or (R_7O-PO-R_9)-alkylene-NR_5 group wherein in each case the alkylene moiety, which is straight-chained and contains 1 to 4 carbon atoms, may additionally be substituted by one or two C_{1-2}-alkyl groups or by an R_6O-CO or R_6O-CO-C_{1-2}-alkyl group, while

R_5 denotes a hydrogen atom,

a C_{1-4}-alkyl group which may be substituted by an R_6O-CO group,

an ethyl or propyl group optionally substituted by one or two methyl or ethyl groups which is terminally substituted in each case by a hydroxy, C_{1-4}-alkoxy, di-(C_{1-4}-alkyl)amino, C_{1-6}-alkylcarbonylsulphenyl, C_{3-6}-cycloalkylcarbonylsulphenyl, C_{3-6}-cycloalkyl-C_{1-3}-alkylcarbonylsulphenyl, arylcarbonylsulphenyl or aryl-C_{1-3}-alkylcarbonylsulphenyl group,

an ethyl or propyl group optionally substituted by one or two methyl or ethyl groups which is terminally substituted in each case by a C_{1-6}-alkylcarbonyloxy, C_{3-6}-cycloalkylcarbonyloxy, C_{3-6}-cycloalkyl-C_{1-3}-alkylcarbonyloxy, arylcarbonyloxy or aryl-C_{1-3}-alkylcarbonyloxy group,

a C_{3-6}-cycloalkyl or C_{3-6}-cycloalkyl-C_{1-3}-alkyl group,

R_6, R_7 and R_8, which may be identical or different, in each case denote a hydrogen atom,

a C_{1-8}-alkyl group which may be substituted by a hydroxy, C_{1-4}-alkoxy, or di-(C_{1-4}-alkyl)-amino group or by a 4- to 7-membered alkyleneimino group, while in the abovementioned 6- to 7-membered alkyleneimino groups, in each case a methylene group in the 4 position may be replaced by an oxygen atom or by an N-(C_{1-2}-alkyl)-imino group,

a C_{4-6}-cycloalkyl group,

a C_{3-5}-alkenyl or C_{3-5}-alkynyl group, while the unsaturated moiety may not be linked to the oxygen atom,

a C_{3-6}-cycloalkyl-C_{1-4}-alkyl, aryl, aryl-C_{1-4}-alkyl or R_gCO-O-(R_eCR_f) group, wherein

R_e and R_f, which may be identical or different, in each case denote a hydrogen atom or a C_{1-4}-alkyl group and

R_g denotes a C_{1-4}-alkyl, C_{3-6}-cycloalkyl, C_{1-4}-alkoxy or C_{5-6}-cycloalkoxy group,

and R_9 denotes a C_{1-4}-alkyl group,

a 4- to 7-membered alkyleneimino group which is substituted by an R_6O-CO, R_6O-CO-C_{1-4}-alkyl or bis-(R_6O-CO)-C_{1-4}-alkyl group wherein R_6 is as hereinbefore defined,

a 4- to 7-membered alkyleneimino group which is substituted by two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups wherein R_6 is as hereinbefore defined,

a piperazino or homopiperazino group which is substituted in the 4 position by the group R_{10} and additionally at a cyclic carbon atom by an R_6O-CO, R_6O-CO-C_{1-4}-alkyl or bis-(R_6O-CO)-C_{1-4}-alkyl group wherein R_6 is as hereinbefore defined and

R_{10} denotes a hydrogen atom, a methyl, ethyl, acetyl or methylsulfonyl group,

Sub A3

a piperazino or homopiperazino group which is substituted in the 4 position by the group R_{10} and is additionally substituted at cyclic carbon atoms by two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups wherein R_6 and R_{10} are as hereinbefore defined,

a piperazino or homopiperazino group which is substituted in each case in the 4 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_9 are as hereinbefore defined,

a piperazino or homopiperazino group which is substituted in the 4 position by an R_6O-CO-C_{1-4}-alkyl or bis-(R_6O-CO)-C_{1-4}-alkyl group and is additionally substituted at cyclic carbon atoms by one or two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups wherein R_6 is as hereinbefore defined,

a morpholino or homomorpholino group which is substituted in each case by an R_6O-CO, R_6O-CO-C_{1-4}-alkyl or bis-(R_6O-CO)-C_{1-4}-alkyl group wherein R_6 is as hereinbefore defined,

a morpholino or homomorpholino group which is substituted by two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups wherein R_6 is as hereinbefore defined,

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by the group R_{10}, while the abovementioned 5- to 7-membered rings in each case are additionally substituted at a carbon atom by an R_6O-CO, R_6O-CO-C_{1-4}-alkyl or bis-(R_6O-CO)-C_{1-4}-alkyl group wherein R_6 and R_{10} are as hereinbefore defined,

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by the group R_{10}, while the abovementioned 5- to 7-membered rings in each case are additionally

substituted at carbon atoms by two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups wherein R_6 and R_{10} are as hereinbefore defined,

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_9 are as hereinbefore defined,

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by an R_6O-CO-C_{1-4}-alkyl or bis-(R_6O-CO)-C_{1-4}-alkyl group, while the abovementioned 5- to 7-membered rings in each case are additionally substituted at carbon atoms by one or two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups wherein R_6 is as hereinbefore defined,

a 2-oxo-morpholino group which may be substituted by 1 to 4 C_{1-2}-alkyl groups,

a 2-oxo-thiomorpholino group which may be substituted by 1 to 4 C_{1-2}-alkyl groups,

a morpholino group which is substituted in the 2 position by a C_{1-4}-alkoxy group,

a morpholino group which is substituted in the 2 and 6 positions in each case by a C_{1-4}-alkoxy group,

a C_{1-4}-alkyl-NR_5 group wherein the C_{1-4}-alkyl moiety, which is straight-chained, is terminally substituted by a di-(C_{1-4}-alkoxy)-methyl group, while R_5 is as hereinbefore defined,

a C_{1-4}-alkyl-NR_5 group wherein the C_{1-4}-alkyl moiety, which is straight-chained, is terminally substituted by a 1,3-dioxolan-2-yl or 1,3-dioxan-2-yl group, while R_5 is as hereinbefore defined,

a $R_{11}NR_5$ group wherein R_5 is as hereinbefore defined and

R_{11} denotes a 2-oxo-tetrahydrofuran-3-yl, 2-oxo-tetrahydrofuran-4-yl, 2-oxo-tetrahydropyran-3-yl, 2-oxo-tetrahydropyran-4-yl, 2-oxo-tetrahydropyran-5-yl, 2-oxo-tetrahydrothiophen-3-yl, 2-oxo-tetrahydrothiophen-4-yl, 2-oxo-tetrahydrothiopyran-3-yl, 2-oxo-tetrahydrothiopyran-4-yl or 2-oxo-tetrahydrothiopyran-5-yl group optionally substituted by one or two methyl groups,

Sub A3

or D together with E denotes a hydrogen atom,

a methyl, trifluoromethyl, aryl, R_gCO-O-(R_eCR_f)-O-CO or (R_7O-PO-OR_8) group wherein R_e to R_g and R_7 and R_8 are as hereinbefore defined,

F denotes an -O-C_{1-4}-alkylene group, wherein the alkylene moiety is linked to the group G, or an oxygen atom, while this may not be linked to a nitrogen atom of the group G, and

G denotes an R_6O-CO-alkylene-NR_5, (R_7O-PO-OR_8)-alkylene-NR_5 or (R_7O-PO-R_9)-alkylene-NR_5 group wherein in each case the alkylene moiety, which is straight-chained and contains 1 to 4 carbon atoms, may additionally be substituted by one or two C_{1-2}-alkyl groups or by an R_6O-CO or R_6O-CO-C_{1-2}-alkyl group, while R_5 to R_9 are as hereinbefore defined,

a 4- to 7-membered alkyleneimino group which is substituted by an R_6O-CO, R_6O-CO-C_{1-4}-alkyl or bis-(R_6O-CO)-C_{1-4}-alkyl group wherein R_6 is as hereinbefore defined,

a 4- to 7-membered alkyleneimino group which is substituted by two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups wherein R_6 is as hereinbefore defined,

a piperazino or homopiperazino group which is substituted in the 4 position by the group R_{10} and is additionally substituted at a cyclic carbon atom by an R_6O-CO, R_6O-CO-C_{1-4}-alkyl or

bis-(R_6O-CO)-C_{1-4}-alkyl group wherein R_6 and R_{10} are as hereinbefore defined,

a piperazino or homopiperazino group which is substituted in the 4 position by the group R_{10} and is additionally substituted at cyclic carbon atoms by two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups wherein R_6 and R_{10} are as hereinbefore defined,

a piperazino or homopiperazino group which is substituted in each case in the 4 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_9 are as hereinbefore defined,

a piperazino or homopiperazino group which is substituted in the 4 position by an R_6O-CO-C_{1-4}-alkyl or bis-(R_6O-CO)-C_{1-4}-alkyl group and additionally at cyclic carbon atoms by one or two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups wherein R_6 is as hereinbefore defined,

a morpholino or homomorpholino group which is substituted in each case by an R_6O-CO, R_6O-CO-C_{1-4}-alkyl or bis-(R_6O-CO)-C_{1-4}-alkyl group wherein R_6 is as hereinbefore defined,

a morpholino or homomorpholino group which is substituted by two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups wherein R_6 is as hereinbefore defined,

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by the group R_{10}, while the abovementioned 5- to 7-membered rings in each case are additionally substituted at a carbon atom by an R_6O-CO, R_6O-CO-C_{1-4}-alkyl or bis-(R_6O-CO)-C_{1-4}-alkyl group wherein R_6 and R_{10} are as hereinbefore defined,

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by the group R_{10}, while the abovemen-

tioned 5- to 7-membered rings in each case are additionally substituted at carbon atoms by two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups wherein R_6 and R_{10} are as hereinbefore defined,

Sub A3

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_9 are as hereinbefore defined,

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by an R_6O-CO-C_{1-4}-alkyl or bis-(R_6O-CO)-C_{1-4}-alkyl group, while the abovementioned 5- to 7-membered rings in each case are additionally substituted at carbon atoms by one or two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups wherein R_6 is as hereinbefore defined,

a 2-oxo-morpholino group which may be substituted by 1 or 2 methyl groups,

a 2-oxo-morpholinyl group which is substituted in the 4 position by a C_{1-4}-alkyl or R_6O-CO-C_{1-4}-alkyl group, while R_6 is as hereinbefore defined and the abovementioned 2-oxo-morpholinyl groups in each case are linked to a carbon atom of the group F,

a morpholino group which is substituted in the 2 position by a C_{1-4}-alkoxy group,

a morpholino group which is substituted in the 2 and 6 positions in each case by a C_{1-4}-alkoxy group,

a C_{1-4}-alkyl-NR_5 group wherein the C_{1-4}-alkyl moiety, which is straight-chained, is terminally substituted by a di-(C_{1-4}-alkoxy)-methyl group, while R_5 is as hereinbefore defined,

a C_{1-4}-alkyl-NR_5 group wherein the C_{1-4}-alkyl moiety, which is straight-chained, is terminally substituted by a 1,3-dioxolan-2-yl or 1,3-dioxan-2-yl group, while R_5 is as hereinbefore defined,

a R_hNR_5 group wherein R_5 is as hereinbefore defined and R_h denotes a substituted 2-oxo-tetrahydrofuran-3-yl, 2-oxo-tetrahydrofuran-4-yl, 2-oxo-tetrahydropyran-3-yl, 2-oxo-tetrahydropyran-4-yl or 2-oxo-tetrahydropyran-5-yl group optionally by one or two methyl groups, or

F and G together denote a hydrogen atom,

a C_{1-4}-alkoxy group optionally substituted from position 2 onwards by a hydroxy or C_{1-4}-alkoxy group,

a C_{1-4}-alkoxy group which is substituted by an R_6O-CO group, where R_6 is as hereinbefore defined, or

a C_{4-7}-cycloalkoxy or C_{3-7}-cycloalkyl-C_{1-4}-alkoxy group

with the proviso that at least one of the groups E, G or F together with G contains an R_6O-CO, (R_7O-PO-OR_8) or (R_7O-PO-R_9) group or

D together with E contains an R_gCO-O-(R_eCR_f)-O-CO or (R_7O-PO-OR_8) group or

E or G contains an optionally substituted 2-oxo-morpholinyl group,

a morpholino group substituted in the 2 position or in the 2 and 6 positions in each case by a C_{1-4}-alkoxy group,

a di-(C_{1-4}-alkoxy)-methyl group or

an optionally substituted 1,3-dioxolan-2-yl, 1,3-dioxan-2-yl, 2-oxo-tetrahydrofuran-3-yl, 2-oxo-tetrahydrofuran-4-yl, 2-oxo-tetrahydropyran-3-yl, 2-oxo-tetrahydropyran-4-yl or 2-oxo-tetrahydropyran-5-yl group or

E contains an optionally substituted 2-oxo-thiomorpholino group or an optionally substituted 2-oxo-tetrahydrothiophen-3-yl, 2-oxo-tetrahydrothiophen-4-yl, 2-oxo-tetrahydrothiopyran-3-yl, 2-oxo-tetrahydrothiopyran-4-yl or 2-oxo-tetrahydrothiopyran-5-yl group,

Sub A3

while the aryl moieties mentioned in the definition of the abovementioned groups denote a phenyl group which may in each case be monosubstituted by R_{12}, mono- or disubstituted by R_{13} or monosubstituted by R_{12} and additionally mono- or disubstituted by R_{13}, wherein the substituents may be identical or different and

R_{12} denotes a cyano, C_{1-2}-alkoxycarbonyl, aminocarbonyl, C_{1-2}-alkylaminocarbonyl, di-(C_{1-2}-alkyl)-aminocarbonyl, C_{1-2}-alkylsulphenyl, C_{1-2}-alkylsulphinyl, C_{1-2}-alkylsulphonyl, hydroxy, nitro, amino, C_{1-2}-alkylamino or di-(C_{1-2}-alkyl)-amino group and

R_{13} denotes a fluorine, chlorine, bromine or iodine atom, a C_{1-2}-alkyl, trifluoromethyl or C_{1-2}-alkoxy group or

two groups R_{13}, if they are bound to adjacent carbon atoms, together denote a C_{3-5}-alkylene, methylenedioxy or 1,3-butadien-1,4-ylene group,

the tautomers, the stereoisomers and the salts thereof.

3. Bicyclic heterocycles of general formula I according to claim 1, wherein

R_a denotes a hydrogen atom,

R_b denotes a phenyl, benzyl or 1-phenylethyl group wherein the phenyl nucleus is substituted in each case by the groups R_1 to R_3, while

R_1 and R_2, which may be identical or different, each denote a hydrogen, fluorine, chlorine or bromine atom, or a methyl, trifluoromethyl, methoxy, ethynyl or cyano group,

R_3 denotes a hydrogen atom,

R_c and R_d in each case denote a hydrogen atom,

X denotes a methine group substituted by a cyano group, or a nitrogen atom,

A denotes an imino group,

B denotes a carbonyl group,

C denotes a 1,1- or 1,2-vinylene group,

an ethynylene group or

a 1,3-butadien-1,4-ylene group,

D denotes a C_{1-4}-alkylene group,

a -CO-NR_4-alkylene group wherein the alkylene moiety contains 2 to 4 carbon atoms, while the linking to the adjacent group C in each case must take place via the carbonyl group, wherein

R_4 denotes a hydrogen atom,

or, if D is bound to a carbon atom of the group E, it may also denote a bond

or, if D is bound to a nitrogen atom of the group E, it may also denote a carbonyl group,

E denotes an R_6O-CO-alkylene-NR_5, (R_7O-PO-OR_8)-alkylene-NR_5 or (R_7O-PO-R_9)-alkylene-NR_5 group wherein in each case the alkylene moiety, which is straight-chained and contains 1 to 4 carbon atoms, may additionally be substituted by one or two C_{1-2}-alkyl groups or by an R_6O-CO or R_6O-CO-C_{1-2}-alkyl group, while

R_5 denotes a hydrogen atom,

a C_{1-4}-alkyl group which may be substituted by an R_6O-CO group,

an ethyl group optionally substituted by one or two methyl or ethyl groups which is terminally substituted by a C_{1-4}-alkylcarbonylsulphenyl, arylcarbonylsulphenyl or arylmethylcarbonylsulphenyl group,

an ethyl group optionally substituted by one or two methyl or ethyl groups which is terminally substituted by a hydroxy, C_{1-4}-alkylcarbonyloxy, arylcarbonyloxy or arylmethylcarbonyloxy group,

a 2,2-dimethoxyethyl or 2,2-diethoxyethyl group,

a C_{3-6}-cycloalkyl or C_{3-6}-cycloalkyl-methyl group,

R_6, R_7 and R_8, which may be identical or different, in each case denote a hydrogen atom,

a C_{1-8}-alkyl group,

a cyclopentyl, cyclopentylmethyl, cyclohexyl or cyclohexylmethyl group,

an aryl, arylmethyl or R_gCO-O-(R_eCR_f) group, while

R_e denotes a hydrogen atom or a C_{1-4}-alkyl group,

R_f denotes a hydrogen atom and

R_g denotes a C_{1-4}-alkyl, cyclopentyl, cyclohexyl, C_{1-4}-alkoxy, cyclopentyloxy or cyclohexyloxy group,

and R_9 denotes a methyl or ethyl group,

a pyrrolidino or piperidino group which is substituted by an R_6O-CO or R_6O-CO-C_{1-2}-alkyl group wherein R_6 is as hereinbefore defined,

a pyrrolidino or piperidino group which is substituted by two R_6O-CO or R_6O-CO-C_{1-2}-alkyl groups wherein R_6 is as hereinbefore defined,

a piperazino group which is substituted in the 4 position by the group R_{10} and is additionally substituted at a cyclic carbon atom by an R_6O-CO or R_6O-CO-C_{1-2}-alkyl group, wherein R_6 is as hereinbefore defined and

R_{10} denotes a hydrogen atom, a methyl, ethyl, acetyl or methylsulfonyl group,

a piperazino or homopiperazino group which is substituted in the 4 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl or (R_7O-PO-OR_8)-C_{1-2}-alkyl group wherein R_6 to R_8 are as hereinbefore defined,

a piperazino group which is substituted in the 4 position by an R_6O-CO-C_{1-2}-alkyl group and is additionally substituted at a cyclic carbon atom by an R_6O-CO or R_6O-CO-C_{1-2}-alkyl group wherein R_6 is as hereinbefore defined,

a morpholino group which is substituted by an R_6O-CO or R_6O-CO-C_{1-2}-alkyl group, while R_6 is as hereinbefore defined,

a piperidinyl group substituted in the 1 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl or (R_7O-PO-OR_8)-C_{1-2}-alkyl group wherein R_6 to R_8 are as hereinbefore defined,

Sub A3

a 2-oxo-morpholino group which may be substituted by 1 or 2 C_{1-2}-alkyl groups,

a 2-oxo-thiomorpholino group which may be substituted by 1 or 2 C_{1-2}-alkyl groups,

a morpholino group which is substituted in the 2 position by a methoxy or ethoxy group,

a morpholino group which is substituted in the 2 and 6 positions in each case by a methoxy or ethoxy group,

a 2,2-dimethoxyethyl-NR_5, 2,2-diethoxyethyl-NR_5, 1,3-dioxolan-2-yl-methyl-NR_5 or 1,3-dioxan-2-yl-methyl-NR_5 group wherein R_5 is as hereinbefore defined,

a N-methyl-$R_{11}N$ or N-ethyl-$R_{11}N$ group wherein

R_{11} denotes a 2-oxo-tetrahydrofuran-3-yl, 2-oxo-tetrahydrofuran-4-yl, 2-oxo-tetrahydropyran-3-yl, 2-oxo-tetrahydropyran-4-yl, 2-oxo-tetrahydropyran-5-yl, 2-oxo-tetrahydrothiophen-3-yl, 2-oxo-tetrahydrothiophen-4-yl, 2-oxo-tetrahydrothiopyran-3-yl, 2-oxo-tetrahydrothiopyran-4-yl or 2-oxo-tetrahydrothiopyran-5-yl group optionally substituted by one or two methyl groups,

or D together with E denotes a hydrogen atom,

a methyl, trifluoromethyl, aryl, R_gCO-O-(R_eCR_f)-O-CO or (R_7O-PO-OR_8) group wherein R_e to R_g and R_7 and R_8 are as hereinbefore defined,

F denotes an -O-C_{1-4}-alkylene group, while the alkylene moiety is linked to the group G, or an oxygen atom, which may not be linked to a nitrogen atom of the group G, and

Sub A3

G denotes an R_6O-CO-alkylene-NR_5 group wherein the alkylene moiety, which is straight-chained and contains 1 to 4 carbon atoms, may additionally be substituted by one or two C_{1-2}-alkyl groups or by an R_6O-CO or R_6O-CO-C_{1-2}-alkyl group, while R_5 and R_6 are as hereinbefore defined,

a pyrrolidino or piperidino group which is substituted by an R_6O-CO or R_6O-CO-C_{1-2}-alkyl group wherein R_6 is as hereinbefore defined,

a pyrrolidino or piperidino group which is substituted by two R_6O-CO or R_6O-CO-C_{1-2}-alkyl groups wherein R_6 is as hereinbefore defined,

a piperazino group which is substituted in the 4 position by the group R_{10} and additionally at a cyclic carbon atom by an R_6O-CO, or R_6O-CO-C_{1-2}-alkyl group, while R_6 and R_{10} are as hereinbefore defined,

a piperazino group which is substituted in the 4 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl or (R_7O-PO-OR_8)-C_{1-2}-alkyl group wherein R_6 to R_8 are as hereinbefore defined,

a piperazino group which is substituted in the 4 position by an R_6O-CO-C_{1-2}-alkyl group and additionally at a cyclic carbon atom by an R_6O-CO or R_6O-CO-C_{1-2}-alkyl group wherein R_6 is as hereinbefore defined,

a morpholino group which is substituted by an R_6O-CO or R_6O-CO-C_{1-2}-alkyl group, while R_6 is as hereinbefore defined,

a piperidinyl group substituted in the 1 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl or (R_7O-PO-OR_8)-C_{1-2}-alkyl group wherein R_6 to R_8 are as hereinbefore defined,

a 2-oxo-morpholino group which may be substituted by 1 or 2 methyl groups,

a 2-oxo-morpholinyl group which is substituted in the 4 position by a methyl, ethyl or R_6O-CO-C_{1-2}-alkyl group, while R_6 is as hereinbefore defined and the abovementioned 2-oxo-morpholinyl groups are each linked to a carbon atom of the group F,

a morpholino group which is substituted in the 2 position by a methoxy or ethoxy group,

a morpholino group which is substituted in the 2 and 6 positions in each case by a methoxy or ethoxy group,

a 2,2-dimethoxyethyl-NR_5, 2,2-diethoxyethyl-NR_5, 1,3-dioxolan-2-yl-methyl-NR_5 or 1,3-dioxan-2-yl-methyl-NR_5- group or

F and G together denote a hydrogen atom,

a methoxy or ethoxy group,

a C_{1-3}-alkoxy group which is substituted by an R_6O-CO group, while R_6 is as hereinbefore defined,

a C_{4-6}-cycloalkoxy or C_{3-6}-cycloalkyl-C_{1-3}-alkoxy group

with the proviso that at least one of the groups E, G or F together with G contains an R_6O-CO, (R_7O-PO-OR_8) or (R_7O-PO-R_9) group or

D together with E contains an R_gCO-O-(R_eCR_f)-O-CO or (R_7O-PO-OR_8) group or

E or G contains an optionally substituted 2-oxo-morpholinyl group,

a morpholino group substituted in the 2 position or in the 2 and 6 positions in each case by a methoxy or ethoxy group,

a dimethoxymethyl or diethoxymethyl group or

an optionally substituted 1,3-dioxolan-2-yl or 1,3-dioxan-2-yl- group or

E contains an optionally substituted 2-oxo-tetrahydrofuran-3-yl, 2-oxo-tetrahydrofuran-4-yl, 2-oxo-tetrahydropyran-3-yl, 2-oxo-tetrahydropyran-4-yl, 2-oxo-tetrahydropyran-5-yl, 2-oxo-thiomorpholino, 2-oxo-tetrahydrothiophen-3-yl, 2-oxo-tetrahydrothiophen-4-yl, 2-oxo-tetrahydrothiopyran-3-yl, 2-oxo-tetrahydrothiopyran-4-yl or 2-oxo-tetrahydrothiopyran-5-yl group,

while the aryl moieties mentioned in the definition of the abovementioned groups denote a phenyl group which may be mono- or disubstituted by R_{13}, while the substituents may be identical or different and

R_{13} denotes a fluorine, chlorine, bromine or iodine atom, a C_{1-2}-alkyl, trifluoromethyl or C_{1-2}-alkoxy group or

two groups R_{13}, if they are bound to adjacent carbon atoms, together denote a C_{3-4}-alkylene, methylenedioxy or 1,3-butadien-1,4-ylene group,

the tautomers, the stereoisomers and the salts thereof.

4. Bicyclic heterocycles of general formula I according to claim 1, wherein

R_a denotes a hydrogen atom,

R_b denotes a phenyl, benzyl or 1-phenylethyl group wherein the phenyl nucleus is substituted in each case by the groups R_1 to R_3, wherein

R_1 and R_2, which may be identical or different, each denote a hydrogen, fluorine, chlorine or bromine atom or a methyl group and

R_3 denotes a hydrogen atom,

R_c and R_d each denote a hydrogen atom,

X denotes a methine group substituted by a cyano group, or a nitrogen atom,

A denotes an imino group,

B denotes a carbonyl group,

C denotes a 1,2-vinylene or an ethynylene group,

D denotes a C_{1-4}-alkylene group,

a $-CO-NR_4-$alkylene group wherein the alkylene moiety contains 2 or 3 carbon atoms, while the linking to the adjacent group C must take place via the carbonyl group wherein

R_4 denotes a hydrogen atom,

or, if D is bound to a nitrogen atom of the group E, it may also denote a carbonyl group,

E denotes an R_6O-CO-alkylene-NR_5 or (R_7O-PO-OR_8)-alkylene-NR_5 group wherein in each case the alkylene moiety, which is straight-chained and contains 1 to 2 carbon atoms, may additionally be substituted by a methyl group or by an R_6O-CO or R_6O-CO-methyl group, while

R_5 denotes a hydrogen atom,

a C_{1-2}-alkyl group which may be substituted by an R_6O-CO group,

an ethyl group optionally substituted by one or two methyl groups, which is terminally substituted by a hydroxy, C_{1-2}-alkylcarbonylsulphenyl or C_{1-2}-alkylcarbonyloxy group,

a 2,2-dimethoxyethyl or 2,2-diethoxyethyl group,

R_6 denotes a hydrogen atom,

a C_{1-8}-alkyl group,

a cyclopentyl, cyclopentylmethyl, cyclohexyl or cyclohexylmethyl group,

a phenyl group optionally substituted by one or two methyl groups, a phenylmethyl group which may be substituted in the phenyl moiety by one or two methyl groups, a 5-indanyl group or an R_gCO-O-(R_eCR_f) group, while

R_e denotes a hydrogen atom or a methyl group,

R_f denotes a hydrogen atom and

R_g denotes a C_{1-4}-alkyl or C_{1-2}-alkoxy group,

R_7 and R_8, which may be identical or different, each denote a hydrogen atom, a methyl, ethyl or phenyl group,

a pyrrolidino or piperidino group which is substituted by an R_6O-CO or R_6O-CO-methyl group, wherein R_6 is as hereinbefore defined,

a pyrrolidino or piperidino group which is substituted by two R_6O-CO or R_6O-CO-methyl groups wherein R_6 is as hereinbefore defined,

a piperazino group which is substituted in the 4 position by the group R_{10} and additionally at a cyclic carbon atom by an R_6O-CO group, while R_6 is as hereinbefore defined and

R_{10} denotes a hydrogen atom, a methyl, ethyl, acetyl or methylsulfonyl group,

a piperazino or homopiperazino group which is substituted in the 4 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl or (R_7O-PO-OR_8)-C_{1-2}-alkyl group wherein R_6 to R_8 are as hereinbefore defined,

a piperazino group which is substituted in the 4 position by an R_6O-CO-methyl group and additionally at a cyclic carbon atom by an R_6O-CO group wherein R_6 is as hereinbefore defined,

a morpholino group which is substituted by an R_6O-CO- group, while R_6 is as hereinbefore defined,

a 2-oxo-morpholino group which may be substituted by 1 to 2 C_{1-2}-alkyl groups,

a 2-oxo-thiomorpholino group which may be substituted by 1 to 2 C_{1-2}-alkyl groups,

a morpholino group which is substituted in the 2 position by a methoxy or ethoxy group,

a morpholino group which is substituted in the 2 and 6 positions in each case by a methoxy or ethoxy group,

a 2,2-dimethoxyethyl-NR_5, 2,2-diethoxyethyl-NR_5 or 1,3-dioxolan-2-yl-methyl-NR_5- group wherein R_5 is as hereinbefore defined,

an N-methyl-$R_{11}N$ or N-ethyl-$R_{11}N$ group wherein

R_{11} denotes a 2-oxo-tetrahydrofuran-3-yl or 2-oxo-tetrahydrofuran-4-yl group,

or D together with E denotes a hydrogen atom,

a methyl group or an R_gCO-O-(R_eCR_f)-O-CO group wherein R_e to R_g are as hereinbefore defined,

F denotes a -O-C_{1-4}-alkylene group, while the alkylene moiety is linked to the group G, or an oxygen atom, which may not be linked to a nitrogen atom of the group G, and

G denotes an R_6O-CO-alkylene-NR_5 group wherein the alkylene moiety, which is straight-chained and contains 1 or 2 carbon atoms, may additionally be substituted by a methyl group or by an R_6O-CO or R_6O-CO-methyl group, while R_5 and R_6 are as hereinbefore defined,

a pyrrolidino or piperidino group which is substituted by an R_6O-CO or R_6O-CO-methyl group wherein R_6 is as hereinbefore defined,

a pyrrolidino or piperidino group which is substituted by two R_6O-CO or R_6O-CO-methyl groups wherein R_6 is as hereinbefore defined,

a piperazino group which is substituted in the 4 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl or (R_7O-PO-OR_8)-C_{1-2}-alkyl group wherein R_6 to R_8 are as hereinbefore defined,

a piperidinyl group substituted in the 1 position by an R_6O-CO-C_{1-2}-alkyl group wherein R_6 is as hereinbefore defined, or

F and G together denote a hydrogen atom,

a methoxy or ethoxy group,

a C_{4-6}-cycloalkoxy or C_{3-6}-cycloalkyl-C_{1-3}-alkoxy group,

with the proviso that at least one of the groups E or G contains an R_6O-CO or (R_7O-PO-OR_8) group or

D together with E contains an R_gCO-O-(R_eCR_f)-O-CO group or

E contains an optionally substituted 2-oxo-morpholinyl group,

a morpholino group substituted in the 2 position or in the 2 and 6 positions in each case by a methoxy or ethoxy group,

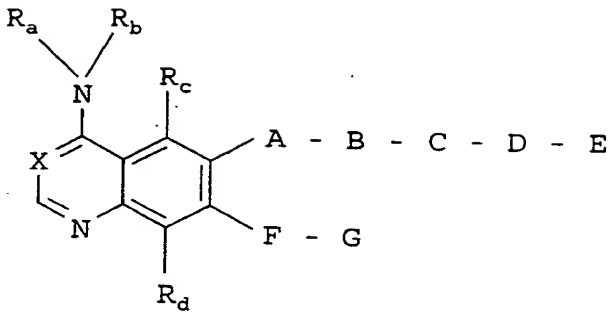
a dimethoxymethyl or diethoxymethyl group or

a 1,3-dioxolan-2-yl, 2-oxo-tetrahydrofuran-3-yl or 2-oxo-tetrahydrofuran-4-yl group or

an optionally substituted 2-oxo-thiomorpholino group,

the tautomers, the stereoisomers and the salts thereof.

5. Bicyclic heterocycles of general formula



, (I)

wherein

R_a to R_d, A to C and X are defined as in claim 1,

D denotes an alkylene, -CO-alkylene or -SO_2-alkylene group wherein the alkylene moiety in each case contains 1 to 8 carbon atoms and additionally 1 to 4 hydrogen atoms in the alkylene moiety may be replaced by fluorine atoms, whilst the linking of the -CO-alkylene and -SO_2-alkylene group to the adjacent group C in each case must take place via the carbonyl or sulphonyl group,

a -CO-O-alkylene, -CO-NR_4-alkylene or -SO_2-NR_4-alkylene group wherein the alkylene moiety in each case contains 1 to 8 carbon atoms, whilst the linking to the adjacent group C in each case must take place via the carbonyl or sulphonyl group wherein

R_4 denotes a hydrogen atom or a C_{1-4}-alkyl group,

or, if D is bound to a carbon atom of the group E, it may also denote a bond

or, if D is bound to a nitrogen atom of the group E, it may also denote a carbonyl or sulphonyl group,

E denotes an R_6O-CO-alkylene-NR_5, (R_7O-PO-OR_8)-alkylene-NR_5 or (R_7O-PO-R_9)-alkylene-NR_5-group wherein in each case the alkylene moiety, which is straight-chained and contains 1 to 6 carbon

atoms, may additionally be substituted by one or two C_{1-2}-alkyl groups or by an R_6O-CO or R_6O-CO-C_{1-2}-alkyl group, wherein

R_5 denotes a hydrogen atom,

a C_{1-4}-alkyl group, which may be substituted by an R_6O-CO, (R_7O-PO-OR_8) or (R_7O-PO-R_9) group,

an ethyl or propyl group optionally substituted by one or two methyl or ethyl groups, which may be terminally substituted in each case by a C_{1-6}-alkylcarbonylsulphenyl, C_{3-7}-cycloalkylcarbonylsulphenyl, C_{3-7}-cycloalkyl-C_{1-3}-alkylcarbonylsulphenyl, arylcarbonylsulphenyl or aryl-C_{1-3}-alkylcarbonylsulphenyl group,

an ethyl or propyl group optionally substituted by one or two methyl or ethyl groups which may be terminally substituted in each case by a C_{1-6}-alkylcarbonyloxy, C_{3-7}-cycloalkylcarbonyloxy, C_{3-7}-cycloalkyl-C_{1-3}-alkylcarbonyloxy, arylcarbonyloxy or aryl-C_{1-3}-alkylcarbonyloxy group,

an ethyl or propyl group optionally substituted by one or two methyl or ethyl groups, each of which may be terminally substituted by a hydroxy, C_{1-4}-alkoxy, amino, C_{1-4}-alkylamino or di-(C_{1-4}-alkyl)-amino group or by a 4- to 7-membered alkyleneimino group, whilst in the abovementioned 6- to 7-membered alkyleneimino groups a methylene group in the 4 position may be replaced by an oxygen or sulphur atom, by a sulphinyl, sulphonyl, imino or N-(C_{1-4}-alkyl)-imino group,

a C_{3-7}-cycloalkyl or C_{3-7}-cycloalkyl-C_{1-3}-alkyl group,

R_6, R_7 and R_8, which may be identical or different, in each case denote a hydrogen atom,

a C_{1-8}-alkyl group, which may be substituted by a hydroxy, C_{1-4}-alkoxy, amino, C_{1-4}-alkylamino or di-(C_{1-4}-alkyl)-amino

group or by a 4- to 7-membered alkyleneimino group, whilst in the abovementioned 6- to 7-membered alkyleneimino groups in each case a methylene group in the 4 position may be replaced by an oxygen or sulphur atom or by a sulphinyl, sulphonyl, imino or N-(C_{1-4}-alkyl)-imino group,

a C_{4-7}-cycloalkyl group optionally substituted by 1 or 2 methyl groups,

a C_{3-5}-alkenyl or C_{3-5}-alkynyl group, wherein the unsaturated part may not be linked to the oxygen atom,

a C_{3-7}-cycloalkyl-C_{1-4}-alkyl, aryl, aryl-C_{1-4}-alkyl or R_gCO-O-(R_eCR_f)-group, whilst

R_e and R_f, which may be identical or different, in each case denote a hydrogen atom or a C_{1-4}-alkyl group and

R_g denotes a C_{1-4}-alkyl, C_{3-7}-cycloalkyl, C_{1-4}-alkoxy or C_{5-7}-cycloalkoxy group,

and R_9 denotes a C_{1-4}-alkyl, aryl or aryl-C_{1-4}-alkyl group,

a 4- to 7-membered alkyleneimino group which may be substituted by an R_6O-CO, (R_7O-PO-OR_8), (R_7O-PO-R_9), R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_9 are as hereinbefore defined,

a 4- to 7-membered alkyleneimino group which is substituted by two R_6OCO or R_6OCO-C_{1-4}-alkyl groups or by an R_6OCO-group and an R_6OCO-C_{1-4}-alkyl group wherein R_6 is as hereinbefore defined,

a piperazino or homopiperazino group which is substituted in the 4 position by the group R_{10} and is additionally substituted at a cyclic carbon atom by an R_6O-CO, (R_7O-PO-OR_8), (R_7O-PO-R_9), R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl

or $(R_7O\text{-}PO\text{-}R_9)\text{-}C_{1\text{-}4}$-alkyl group wherein R_6 to R_9 are as hereinbefore defined and

R_{10} denotes a hydrogen atom, a $C_{1\text{-}4}$-alkyl, formyl, $C_{1\text{-}4}$-alkylcarbonyl or $C_{1\text{-}4}$-alkylsulphonyl group,

a piperazino or homopiperazino group which is substituted in the 4 position by the group R_{10} and additionally at cyclic carbon atoms by two $R_6O\text{-}CO$ or $R_6O\text{-}CO\text{-}C_{1\text{-}4}$-alkyl groups or by an $R_6O\text{-}CO$-group and an $R_6O\text{-}CO\text{-}C_{1\text{-}4}$-alkyl group wherein R_6 and R_{10} are as hereinbefore defined,

a piperazino or homopiperazino group which is substituted in each case in the 4 position by an $R_6O\text{-}CO\text{-}C_{1\text{-}4}$-alkyl, bis-$(R_6O\text{-}CO)\text{-}C_{1\text{-}4}$-alkyl, $(R_7O\text{-}PO\text{-}OR_8)\text{-}C_{1\text{-}4}$-alkyl or $(R_7O\text{-}PO\text{-}R_9)\text{-}C_{1\text{-}4}$-alkyl group wherein R_6 to R_9 are as hereinbefore defined,

a piperazino or homopiperazino group which is substituted in the 4 position by an $R_6O\text{-}CO\text{-}C_{1\text{-}4}$-alkyl, bis-$(R_6O\text{-}CO)\text{-}C_{1\text{-}4}$-alkyl, $(R_7O\text{-}PO\text{-}OR_8)\text{-}C_{1\text{-}4}$-alkyl or $(R_7O\text{-}PO\text{-}R_9)\text{-}C_{1\text{-}4}$-alkyl group and is additionally substituted at cyclic carbon atoms by one or two $R_6O\text{-}CO$ or $R_6O\text{-}CO\text{-}C_{1\text{-}4}$-alkyl groups or by an $R_6O\text{-}CO$-group and an $R_6O\text{-}CO\text{-}C_{1\text{-}4}$-alkyl group wherein R_6 to R_9 are as hereinbefore defined,

a morpholino or homomorpholino group which is substituted in each case by an $R_6O\text{-}CO$, $(R_7O\text{-}PO\text{-}OR_8)$, $(R_7O\text{-}PO\text{-}R_9)$, $R_6O\text{-}CO\text{-}C_{1\text{-}4}$-alkyl, bis-$(R_6O\text{-}CO)\text{-}C_{1\text{-}4}$-alkyl, $(R_7O\text{-}PO\text{-}OR_8)\text{-}C_{1\text{-}4}$-alkyl or $(R_7O\text{-}PO\text{-}R_9)\text{-}C_{1\text{-}4}$-alkyl group wherein R_6 to R_9 are as hereinbefore defined,

a morpholino or homomorpholino group which is substituted by two $R_6O\text{-}CO$ or $R_6O\text{-}CO\text{-}C_{1\text{-}4}$-alkyl groups or by an $R_6O\text{-}CO$-group and an $R_6O\text{-}CO\text{-}C_{1\text{-}4}$-alkyl group wherein R_6 is as hereinbefore defined,

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by the group R_{10}, whilst the abovemen-

tioned 5- to 7-membered rings are additionally substituted in each case at a carbon atom by an R_6O-CO, (R_7O-PO-OR_8), (R_7O-PO-R_9), R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_{10} are as hereinbefore defined,

Sub A3

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by the group R_{10}, while the abovementioned 5- to 7-membered rings are in each case additionally substituted at carbon atoms by two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups or by an R_6O-CO-group and an R_6O-CO-C_{1-4}-alkyl group wherein R_6 and R_{10} are as hereinbefore defined,

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_9 are as hereinbefore defined,

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group, while the abovementioned 5- to 7-membered rings are in each case additionally substituted at carbon atoms by one or two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups or by an R_6O-CO-group and an R_6O-CO-C_{1-4}-alkyl group wherein R_6 to R_9 are as hereinbefore defined,

a 2-oxo-morpholino group which may be substituted by 1 to 4 C_{1-2}-alkyl groups,

a 2-oxo-thiomorpholino group which may be substituted by 1 to 4 C_{1-2}-alkyl groups,

a morpholino or thiomorpholino group which is substituted in the 2 position by a C_{1-4}-alkoxy group,

a morpholino or thiomorpholino group which is substituted in the 2 and 6 positions by a C_{1-4}-alkoxy group,

a C_{1-4}-alkyl-NR_5-group wherein the C_{1-4}-alkyl moiety, which is straight-chained and may additionally be substituted by one or two methyl groups, is in each case terminally substituted by a di-(C_{1-4}-alkoxy)-methyl or tri-(C_{1-4}-alkoxy)-methyl group, whilst R_5 is as hereinbefore defined,

a C_{1-4}-alkyl-NR_5-group wherein the C_{1-4}-alkyl moiety, which is straight-chained and may additionally be substituted by one or two methyl groups, is in each case terminally substituted by a 1,3-dioxolan-2-yl or 1,3-dioxan-2-yl group optionally substituted by one or two methyl groups, while R_5 is as hereinbefore defined,

an $R_{11}NR_5$-group wherein R_5 is as hereinbefore defined and

R_{11} denotes a 2-oxo-tetrahydrofuran-3-yl, 2-oxo-tetrahydrofuran-4-yl, 2-oxo-tetrahydropyran-3-yl, 2-oxo-tetrahydropyran-4-yl, 2-oxo-tetrahydropyran-5-yl, 2-oxo-tetrahydrothiophen-3-yl, 2-oxo-tetrahydrothiophen-4-yl, 2-oxo-tetrahydrothiopyran-3-yl, 2-oxo-tetrahydrothiopyran-4-yl or 2-oxo-tetrahydrothiopyran-5-yl group optionally substituted by one or two methyl groups,

or D together with E denotes an R_gCO-O-(R_eCR_f)-O-CO, (R_7O-PO-OR_8) or (R_7O-PO-R_9)-group wherein R_e to R_g and R_7 to R_9 are as hereinbefore defined,

F and G together denote a hydrogen atom,
a C_{1-6}-alkoxy group optionally substituted from position 2 onwards by a hydroxy or C_{1-4}-alkoxy group,
a C_{3-7}-cycloalkoxy or C_{3-7}-cycloalkyl-C_{1-4}-alkoxy group,

whilst by the aryl moieties mentioned in the definitions of the abovementioned groups is meant a phenyl group which in

each case may be monosubstituted by R_{12}, mono-, di- or trisubstituted by R_{13} or monosubstituted by R_{12} and additionally mono- or disubstituted by R_{13}, whilst the substituents may be identical or different and

R_{12} denotes a cyano, carboxy, C_{1-4}-alkoxycarbonyl, aminocarbonyl, C_{1-4}-alkylaminocarbonyl, di-(C_{1-4}-alkyl)-aminocarbonyl, C_{1-4}-alkylsulphenyl, C_{1-4}-alkylsulphinyl, C_{1-4}-alkylsulphonyl, hydroxy, C_{1-4}-alkylsulphonyloxy, trifluoromethyloxy, nitro, amino, C_{1-4}-alkylamino, di-(C_{1-4}-alkyl)-amino, C_{1-4}-alkylcarbonylamino, N-(C_{1-4}-alkyl)-C_{1-4}-alkylcarbonylamino, C_{1-4}-alkylsulphonylamino, N-(C_{1-4}-alkyl)-C_{1-4}-alkylsulphonylamino, aminosulphonyl, C_{1-4}-alkylaminosulphonyl or di-(C_{1-4}-alkyl)-aminosulphonyl group or a carbonyl group, which is substituted by a 5- to 7-membered alkyleneimino group, wherein in the abovementioned 6- to 7-membered alkyleneimino groups in each case a methylene group in the 4 position may be replaced by an oxygen or sulphur atom, by a sulphinyl, sulphonyl, imino or N-(C_{1-4}-alkyl)-imino-group, and

R_{13} denotes a fluorine, chlorine, bromine or iodine atom, a C_{1-4}-alkyl, trifluoromethyl or C_{1-4}-alkoxy group or

two groups R_{13}, if they are bound to adjacent carbon atoms, together denote a C_{3-5}-alkylene, methylenedioxy or 1,3-butadien-1,4-ylene group,

the tautomers, the stereoisomers and the salts thereof.

6. Bicyclic heterocycles of general formula I according to claim 5, wherein
R_a to R_d, A to C and X are defined as in claim 2,

D denotes an alkylene or -CO-alkylene group wherein the alkylene moiety in each case contains 1 to 4 carbon atoms, while the linking of the -CO-alkylene group to the adjacent group C in each case must take place via the carbonyl group,

a -CO-O-alkylene or -CO-NR_4-alkylene- group wherein the alkylene moiety in each case contains 1 to 4 carbon atoms, while the linking to the adjacent group C in each case must take place via the carbonyl group wherein

R_4 denotes a hydrogen atom or a methyl or ethyl group,

or, if D is bound to a carbon atom of the group E, it may also denote a bond

or, if D is bound to a nitrogen atom of the group E, it may also denote a carbonyl or sulphonyl group,

E denotes an R_6O-CO-alkylene-NR_5, (R_7O-PO-OR_8)-alkylene-NR_5 or (R_7O-PO-R_9)-alkylene-NR_5 group wherein in each case the alkylene moiety, which is straight-chained and contains 1 to 4 carbon atoms, may additionally be substituted by one or two C_{1-2}-alkyl groups or by an R_6O-CO or R_6O-CO-C_{1-2}-alkyl group, while

R_5 denotes a hydrogen atom,

a C_{1-4}-alkyl group which may be substituted by an R_6O-CO group,

an ethyl or propyl group optionally substituted by one or two methyl or ethyl groups which is terminally substituted in each case by a hydroxy, C_{1-4}-alkoxy, di-(C_{1-4}-alkyl)amino, C_{1-6}-alkylcarbonylsulphenyl, C_{3-6}-cycloalkylcarbonylsulphenyl, C_{3-6}-cycloalkyl-C_{1-3}-alkylcarbonylsulphenyl, arylcarbonylsulphenyl or aryl-C_{1-3}-alkylcarbonylsulphenyl group,

an ethyl or propyl group optionally substituted by one or two methyl or ethyl groups which is terminally substituted in each case by a C_{1-6}-alkylcarbonyloxy, C_{3-6}-cycloalkylcarbonyloxy, C_{3-6}-cycloalkyl-C_{1-3}-alkylcarbonyloxy, arylcarbonyloxy or aryl-C_{1-3}-alkylcarbonyloxy group,

a C_{3-6}-cycloalkyl or C_{3-6}-cycloalkyl-C_{1-3}-alkyl group,

R_6, R_7 and R_8, which may be identical or different, in each case denote a hydrogen atom,

a C_{1-8}-alkyl group which may be substituted by a hydroxy, C_{1-4}-alkoxy, or di-(C_{1-4}-alkyl)-amino group or by a 4- to 7-membered alkyleneimino group, while in the abovementioned 6- to 7-membered alkyleneimino groups in each case a methylene group in the 4 position may be replaced by an oxygen atom or by an N-(C_{1-2}-alkyl)-imino group,

a C_{4-6}-cycloalkyl group,

a C_{3-5}-alkenyl or C_{3-5}-alkynyl group, while the unsaturated moiety may not be linked to the oxygen atom,

a C_{3-6}-cycloalkyl-C_{1-4}-alkyl, aryl, aryl-C_{1-4}-alkyl or R_gCO-O-(R_eCR_f) group, while

R_e and R_f, which may be identical or different, in each case denote a hydrogen atom or a C_{1-4}-alkyl group and

R_g denotes a C_{1-4}-alkyl, C_{3-6}-cycloalkyl, C_{1-4}-alkoxy or C_{5-6}-cycloalkoxy group,

and R_9 denotes a C_{1-4}-alkyl group,

a 4- to 7-membered alkyleneimino group which is substituted by an R_6O-CO, R_6O-CO-C_{1-4}-alkyl or bis-(R_6O-CO)-C_{1-4}-alkyl group wherein R_6 is as hereinbefore defined,

a 4- to 7-membered alkyleneimino group which is substituted by two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups wherein R_6 is as hereinbefore defined,

a piperazino or homopiperazino group which is substituted in the 4 position by the group R_{10} and additionally at a cyclic carbon atom by an R_6O-CO, R_6O-CO-C_{1-4}-alkyl or bis-(R_6O-CO)-C_{1-4}-alkyl group wherein R_6 is as hereinbefore defined and

R_{10} denotes a hydrogen atom, a methyl, ethyl, acetyl or methylsulfonyl group,

Sub A3

a piperazino or homopiperazino group which is substituted in the 4 position by the group R_{10} and is additionally substituted at cyclic carbon atoms by two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups wherein R_6 and R_{10} are as hereinbefore defined,

a piperazino or homopiperazino group which is substituted in each case in the 4 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_9 are as hereinbefore defined,

a piperazino or homopiperazino group which is substituted in the 4 position by an R_6O-CO-C_{1-4}-alkyl or bis-(R_6O-CO)-C_{1-4}-alkyl group and is additionally substituted at cyclic carbon atoms by one or two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups wherein R_6 is as hereinbefore defined,

a morpholino or homomorpholino group which is substituted in each case by an R_6O-CO, R_6O-CO-C_{1-4}-alkyl, or bis-(R_6O-CO)-C_{1-4}-alkyl group wherein R_6 is as hereinbefore defined,

a morpholino or homomorpholino group which is substituted by two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups wherein R_6 is as hereinbefore defined,

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by the group R_{10}, while the abovementioned 5- to 7-membered rings in each case are additionally substituted at a carbon atom by an R_6O-CO, R_6O-CO-C_{1-4}-alkyl or

bis-(R_6O-CO)-C_{1-4}-alkyl group wherein R_6 and R_{10} are as hereinbefore defined,

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by the group R_{10}, while the abovementioned 5- to 7-membered rings in each case are additionally substituted at carbon atoms by two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups wherein R_6 and R_{10} are as hereinbefore defined,

sub A3

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_9 are as hereinbefore defined,

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by an R_6O-CO-C_{1-4}-alkyl or bis-(R_6O-CO)-C_{1-4}-alkyl group, while the abovementioned 5- to 7-membered rings in each case are additionally substituted at carbon atoms by one or two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups wherein R_6 is as hereinbefore defined,

a 2-oxo-morpholino group which may be substituted by 1 to 4 C_{1-2}-alkyl groups,

a 2-oxo-thiomorpholino group which may be substituted by 1 to 4 C_{1-2}-alkyl groups,

a morpholino group which is substituted in the 2 position by a C_{1-4}-alkoxy group,

a morpholino group which is substituted in the 2 and 6 positions in each case by a C_{1-4}-alkoxy group,

a C_{1-4}-alkyl-NR_5 group wherein the C_{1-4}-alkyl moiety, which is straight-chained, is terminally substituted by a di-(C_{1-4}-alkoxy)-methyl group, while R_5 is as hereinbefore defined,

a C_{1-4}-alkyl-NR_5 group wherein the C_{1-4}-alkyl moiety, which is straight-chained, is terminally substituted by a 1,3-dioxolan-2-yl or 1,3-dioxan-2-yl group, while R_5 is as hereinbefore defined,

a $R_{11}NR_5$ group wherein R_5 is as hereinbefore defined and

R_{11} denotes a 2-oxo-tetrahydrofuran-3-yl, 2-oxo-tetrahydrofuran-4-yl, 2-oxo-tetrahydropyran-3-yl, 2-oxo-tetrahydropyran-4-yl, 2-oxo-tetrahydropyran-5-yl, 2-oxo-tetrahydrothiophen-3-yl, 2-oxo-tetrahydrothiophen-4-yl, 2-oxo-tetrahydrothiopyran-3-yl, 2-oxo-tetrahydrothiopyran-4-yl or 2-oxo-tetrahydrothiopyran-5-yl group optionally substituted by one or two methyl groups,

or D together with E denotes an R_gCO-O-(R_eCR_f)-O-CO or $(R_7O$-PO-$OR_8)$ group wherein R_e to R_g and R_7 to R_9 are as hereinbefore defined,

F and G together denote a hydrogen atom,

a C_{1-6}-alkoxy group optionally substituted from position 2 by a hydroxy or C_{1-4}-alkoxy group,

a C_{4-7}-cycloalkoxy or C_{3-7}-cycloalkyl-C_{1-4}-alkoxy group,

whilst by the aryl moieties mentioned in the definitions of the abovementioned groups is meant a phenyl group which in each case may be monosubstituted by R_{12}, mono- or disubstituted by R_{13} or monosubstituted by R_{12} and additionally mono- or disubstituted by R_{13}, whilst the substituents may be identical or different and

R_{12} denotes a cyano, C_{1-2}-alkoxycarbonyl, aminocarbonyl, C_{1-2}-alkylaminocarbonyl, di-$(C_{1-2}$-alkyl)-aminocarbonyl, C_{1-2}-alkylsulphenyl, C_{1-2}-alkylsulphinyl, C_{1-2}-alkylsulphonyl, hy-

droxy, nitro, amino, C_{1-2}-alkylamino or di-(C_{1-2}-alkyl)-amino, and

R_{13} denotes a fluorine, chlorine, bromine or iodine atom, a C_{1-2}-alkyl, trifluoromethyl or C_{1-2}-alkoxy group or

two groups R_{13}, if they are bound to adjacent carbon atoms, together denote a C_{3-5}-alkylene, methylenedioxy or 1,3-butadien-1,4-ylene group,

the tautomers, the stereoisomers and the salts thereof.

7. Bicyclic heterocycles of general formula I according to claim 5, wherein

R_a to R_d, A to C and X are defined as in claim 3,

D denotes a C_{1-4}-alkylene group,

a -CO-NR_4-alkylene group wherein the alkylene moiety contains 2 to 4 carbon atoms, while the linking to the adjacent group C in each case must take place via the carbonyl group, wherein

R_4 denotes a hydrogen atom,

or, if D is bound to a carbon atom of the group E, it may also denote a bond

or, if D is bound to a nitrogen atom of the group E, it may also denote a carbonyl group,

E denotes an R_6O-CO-alkylene-NR_5, (R_7O-PO-OR_8)-alkylene-NR_5 or (R_7O-PO-R_9)-alkylene-NR_5 group wherein in each case the alkylene moiety, which is straight-chained and contains 1 to 4 carbon atoms, may additionally be substituted by one or two C_{1-2}-alkyl groups or by an R_6O-CO or R_6O-CO-C_{1-2}-alkyl group, while

R_5 denotes a hydrogen atom,

a C_{1-4}-alkyl group which may be substituted by an R_6O-CO group,

Sub A3

an ethyl group optionally substituted by one or two methyl or ethyl groups which is terminally substituted by a C_{1-4}-alkylcarbonylsulphenyl, arylcarbonylsulphenyl or arylmethylcarbonylsulphenyl group,

an ethyl group optionally substituted by one or two methyl or ethyl groups which is terminally substituted by a hydroxy, C_{1-4}-alkylcarbonyloxy, arylcarbonyloxy or arylmethylcarbonyloxy group,

a 2,2-dimethoxyethyl or 2,2-diethoxyethyl group,

a C_{3-6}-cycloalkyl or C_{3-6}-cycloalkyl-methyl group,

R_6, R_7 and R_8, which may be identical or different, in each case denote a hydrogen atom,

a C_{1-8}-alkyl group,

a cyclopentyl, cyclopentylmethyl, cyclohexyl or cyclohexylmethyl group,

an aryl, arylmethyl or R_gCO-O-(R_eCR_f) group, wherein

R_e denotes a hydrogen atom or a C_{1-4}-alkyl group,

R_f denotes a hydrogen atom and

R_g denotes a C_{1-4}-alkyl, cyclopentyl, cyclohexyl, C_{1-4}-alkoxy, cyclopentyloxy or cyclohexyloxy group,

and R_9 denotes a methyl or ethyl group,

a pyrrolidino or piperidino group which is substituted by an R_6O-CO or R_6O-CO-C_{1-2}-alkyl group wherein R_6 is as hereinbefore defined,

a pyrrolidino or piperidino group which is substituted by two R_6O-CO or R_6O-CO-C_{1-2}-alkyl groups wherein R_6 is as hereinbefore defined,

a piperazino group which is substituted in the 4 position by the group R_{10} and is additionally substituted at a cyclic carbon atom by an R_6O-CO or R_6O-CO-C_{1-2}-alkyl group, while R_6 is as hereinbefore defined and

R_{10} denotes a hydrogen atom, a methyl, ethyl, acetyl or methylsulfonyl group,

a piperazino or homopiperazino group which is substituted in the 4 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl or (R_7O-PO-OR_8)-C_{1-2}-alkyl group wherein R_6 to R_8 are as hereinbefore defined,

a piperazino group which is substituted in the 4 position by an R_6O-CO-C_{1-2}-alkyl group and is additionally substituted at a cyclic carbon atom by an R_6O-CO or R_6O-CO-C_{1-2}-alkyl group wherein R_6 is as hereinbefore defined,

a morpholino group which is substituted by an R_6O-CO or R_6O-CO-C_{1-2}-alkyl group, while R_6 is as hereinbefore defined,

a piperidinyl group substituted in the 1 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl or (R_7O-PO-OR_8)-C_{1-2}-alkyl group wherein R_6 to R_8 are as hereinbefore defined,

a 2-oxo-morpholino group which may be substituted by 1 to 2 C_{1-2}-alkyl groups,

a 2-oxo-thiomorpholino group which may be substituted by 1 to 2 C_{1-2}-alkyl groups,

a morpholino group which is substituted in the 2 position by a methoxy or ethoxy group,

Sub A3

a morpholino group which is substituted in the 2 and 6 positions in each case by a methoxy or ethoxy group,

a 2,2-dimethoxyethyl-NR_5, 2,2-diethoxyethyl-NR_5, 1,3-dioxolan-2-yl-methyl-NR_5 or 1,3-dioxan-2-yl-methyl-NR_5 group wherein R_5 is as hereinbefore defined,

a N-methyl-$R_{11}N$ or N-ethyl-$R_{11}N$ group wherein

R_{11} denotes a 2-oxo-tetrahydrofuran-3-yl, 2-oxo-tetrahydrofuran-4-yl, 2-oxo-tetrahydropyran-3-yl, 2-oxo-tetrahydropyran-4-yl, 2-oxo-tetrahydropyran-5-yl, 2-oxo-tetrahydrothiophen-3-yl, 2-oxo-tetrahydrothiophen-4-yl, 2-oxo-tetrahydrothiopyran-3-yl, 2-oxo-tetrahydrothiopyran-4-yl or 2-oxo-tetrahydrothiopyran-5-yl group optionally substituted by one or two methyl groups,

or D together with E denotes an R_gCO-O-(R_eCR_f)-O-CO or (R_7O-PO-OR_8) group wherein R_e to R_g and R_7 and R_8 are as hereinbefore defined,

F and G together denote a hydrogen atom, a methoxy, ethoxy, C_{4-6}-cycloalkoxy or C_{3-6}-cycloalkyl-C_{1-3}-alkoxy group,

while the aryl moieties mentioned in the definition of the abovementioned groups denote a phenyl group which may be mono- or disubstituted by R_{13}, while the substituents may be identical or different and

R_{13} denotes a fluorine, chlorine, bromine or iodine atom, a C_{1-2}-alkyl, trifluoromethyl or C_{1-2}-alkoxy group or

two groups R_{13}, if they are bound to adjacent carbon atoms, together denote a C_{3-4}-alkylene, methylenedioxy or 1,3-butadien-1,4-ylene group,

the tautomers, the stereoisomers and the salts thereof.

Sub A3

8. Bicyclic heterocycles of general formula I according to claim 5, wherein

R_a to R_d, A to C and X are defined as in claim 4,

D denotes a C_{1-4}-alkylene group,

a -CO-NR_4-alkylene group wherein the alkylene moiety contains 2 or 3 carbon atoms, while the linking to the adjacent group C must take place via the carbonyl group wherein

R_4 denotes a hydrogen atom,

or, if D is bound to a nitrogen atom of the group E, it may also denote a carbonyl group,

E denotes an R_6O-CO-alkylene-NR_5 or (R_7O-PO-OR_8)-alkylene-NR_5 group wherein in each case the alkylene moiety, which is straight-chained and contains 1 to 2 carbon atoms, may additionally be substituted by a methyl group or by an R_6O-CO or R_6O-CO-methyl group, while

R_5 denotes a hydrogen atom,

a C_{1-2}-alkyl group which may be substituted by an R_6O-CO group,

an ethyl group optionally substituted by one or two methyl groups, which is terminally substituted by a hydroxy, C_{1-2}-alkylcarbonylsulphenyl or C_{1-2}-alkylcarbonyloxy group,

a 2,2-dimethoxyethyl or 2,2-diethoxyethyl group,

R_6 denotes a hydrogen atom,

a C_{1-8}-alkyl group,

a cyclopentyl, cyclopentylmethyl, cyclohexyl or cyclohexylmethyl group,

a phenyl group optionally substituted by one or two methyl groups, a phenylmethyl group which may be substituted in the phenyl moiety by one or two methyl groups, a 5-indanyl group or an R_gCO-O-(R_eCR_f) group, while

R_e denotes a hydrogen atom or a methyl group,

R_f denotes a hydrogen atom and

R_g denotes a C_{1-4}-alkyl or C_{1-2}-alkoxy group,

R_7 and R_8, which may be identical or different, in each case denote a hydrogen atom, a methyl, ethyl or phenyl group,

a pyrrolidino or piperidino group which is substituted by an R_6O-CO or R_6O-CO-methyl group, wherein R_6 is as hereinbefore defined,

a pyrrolidino or piperidino group which is substituted by two R_6O-CO or R_6O-CO-methyl groups wherein R_6 is as hereinbefore defined,

a piperazino group which is substituted in the 4 position by the group R_{10} and additionally at a cyclic carbon atom by an R_6O-CO group, while R_5 is as hereinbefore defined and

R_{10} denotes a hydrogen atom, a methyl, ethyl, acetyl or methylsulfonyl group,

a piperazino or homopiperazino group which is substituted in the 4 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl or (R_7O-PO-OR_8)-C_{1-2}-alkyl group wherein R_6 to R_8 are as hereinbefore defined,

a piperazino group which is substituted in the 4 position by an R_6O-CO-methyl group and additionally at a cyclic carbon atom by an R_6O-CO group wherein R_6 is as hereinbefore defined,

a morpholino group which is substituted by an R_6O-CO- group, wherein R_6 is as hereinbefore defined,

a 2-oxo-morpholino group which may be substituted by 1 to 2 C_{1-2}-alkyl groups,

a 2-oxo-thiomorpholino group which may be substituted by 1 to 2 C_{1-2}-alkyl groups,

a morpholino group which is substituted in the 2 position by a methoxy or ethoxy group,

a morpholino group which is substituted in the 2 and 6 positions in each case by a methoxy or ethoxy group,

a 2,2-dimethoxyethyl-NR_5, 2,2-diethoxyethyl-NR_5 or 1,3-dioxolan-2-yl-methyl-NR_5- group wherein R_5 is as hereinbefore defined,

an N-methyl-$R_{11}N$ or N-ethyl-$R_{11}N$ group wherein

R_{11} denotes a 2-oxo-tetrahydrofuran-3-yl or 2-oxo-tetrahydrofuran-4-yl group,

or D together with E denotes an $R_gCO-O-(R_eCR_f)-O-CO$ group wherein R_e to R_g are as hereinbefore defined,

F and G together denote a hydrogen atom,

a methoxy, ethoxy, C_{4-6}-cycloalkoxy or C_{3-6}-cycloalkyl-C_{1-3}-alkoxy group,

Sub A3

the tautomers, the stereoisomers and the salts thereof.

9. Bicyclic heterocycles of general formula I according to at least one of claims 5 to 8, characterised in that R_b denotes one of the optionally substituted 1-phenyl-ethyl groups mentioned in the respective claim 5, 6, 7 or 8,

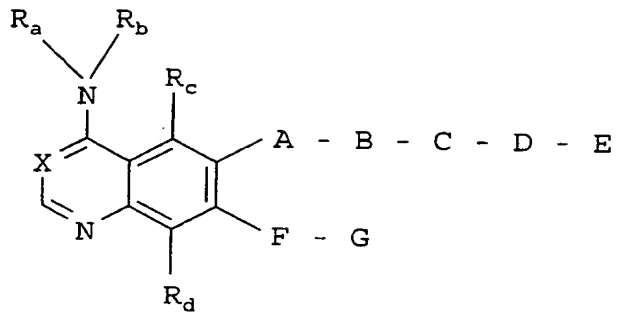
the tautomers, the stereoisomers and the salts thereof.

10. Bicyclic heterocycles of general formula I according to at least one of claims 5 to 8, characterised in that F and G together denote one of the cycloalkoxy or cycloalkyl-alkoxy groups mentioned in the respective claim 5, 6, 7 or 8,

the tautomers, the stereoisomers and the salts thereof.

11. Bicyclic heterocycles of general formula I according to at least one of claims 5 to 8, characterised in that E denotes one of the optionally substituted 2-oxo-morpholino groups mentioned in the respective claim 5, 6, 7 or 8.

12. Bicyclic heterocycles of general formula



, (I)

wherein

R_a to R_d, A to C and X are defined as in claim 1,

D together with E denotes a hydrogen atom,

a C_{1-4}-alkyl group optionally substituted by 1 to 5 fluorine atoms,

a C_{3-6}-cycloalkyl group,

an aryl, heteroaryl, C_{1-4}-alkylcarbonyl, arylcarbonyl or C_{1-4}-alkoxycarbonyl group,

an aminocarbonyl, C_{1-4}-alkylaminocarbonyl or di-(C_{1-4}-alkyl)-aminocarbonyl group or

a carbonyl group, which is substituted by a 4- to 7-membered alkyleneimino group, whilst in the abovementioned 6- to 7-membered alkyleneimino groups, a methylene group in the 4 position may be replaced by an oxygen or sulphur atom, by an imino group substituted by the group R_{10}, by a sulphinyl or sulphonyl group, wherein R_{10} is defined as in claim 1,

F denotes a C_{1-6}-alkylene group, a -O-C_{1-6}-alkylene group, wherein the alkylene moiety is linked to the group G, or an oxygen atom, whilst the latter may not be linked to a nitrogen atom of the group G, and

G denotes an R_6O-CO-alkylene-NR_5, (R_7O-PO-OR_8)-alkylene-NR_5 or (R_7O-PO-R_9)-alkylene-NR_5-group wherein in each case the alkylene moiety, which is straight-chained and contains 1 to 6 carbon atoms, may additionally be substituted by one or two C_{1-2}-alkyl groups or by an R_6O-CO or R_6O-CO-C_{1-2}-alkyl group, wherein R_5 to R_9 are defined as in claim 1,

Sub A3

a 4- to 7-membered alkyleneimino group which is substituted by an R_6O-CO, (R_7O-PO-OR_8), (R_7O-PO-R_9), R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_9 are defined as in claim 1,

a 4- to 7-membered alkyleneimino group which is substituted by two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups or by an R_6O-CO-group and an R_6O-CO-C_{1-4}-alkyl group wherein R_6 is defined as in claim 1,

a piperazino or homopiperazino group which is substituted in the 4 position by the group R_{10} and is additionally substituted at a cyclic carbon atom by an R_6O-CO, (R_7O-PO-OR_8), (R_7O-PO-R_9), R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_{10} are defined as in claim 1,

a piperazino or homopiperazino group which is substituted in the 4 position by the group R_{10} and is additionally substituted at cyclic carbon atoms by two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups or by an R_6O-CO group and an R_6O-CO-C_{1-4}-alkyl group wherein R_6 and R_{10} are defined as in claim 1,

a piperazino or homopiperazino group which is substituted in each case in the 4 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_9 are defined as in claim 1,

a piperazino or homopiperazino group which is substituted in the 4 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group and is

additionally substituted at cyclic carbon atoms by one or two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups or by an R_6O-CO-group and an R_6O-CO-C_{1-4}-alkyl group wherein R_6 to R_9 are defined as in claim 1,

a morpholino or homomorpholino group which is substituted in each case by an R_6O-CO, (R_7O-PO-OR_8), (R_7O-PO-R_9), R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_9 are defined as in claim 1,

Sub A3

a morpholino or homomorpholino group which is substituted by two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups or by an R_6O-CO-group and an R_6O-CO-C_{1-4}-alkyl group wherein R_6 is defined as in claim 1,

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by the group R_{10}, whilst the abovementioned 5- to 7-membered rings are in each case additionally substituted at a carbon atom by an R_6O-CO, (R_7O-PO-OR_8), (R_7O-PO-R_9), R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_{10} are defined as in claim 1,

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by the group R_{10}, while the abovementioned 5- to 7-membered rings are in each case additionally substituted at carbon atoms by two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups or by an R_6O-CO-group and an R_6O-CO-C_{1-4}-alkyl group wherein R_6 and R_{10} are defined as in claim 1,

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_9 are defined as in claim 1,

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-

C_{1-4}-alkyl, $(R_7O\text{-}PO\text{-}OR_8)\text{-}C_{1-4}$-alkyl or $(R_7O\text{-}PO\text{-}R_9)\text{-}C_{1-4}$-alkyl group, while the abovementioned 5- to 7-membered rings are in each case additionally substituted at carbon atoms by one or two $R_6O\text{-}CO$ or $R_6O\text{-}CO\text{-}C_{1-4}$-alkyl groups or by an $R_6O\text{-}CO$-group and an $R_6O\text{-}CO\text{-}C_{1-4}$-alkyl group wherein R_6 to R_9 are defined as in claim 1,

Sub A3

a 2-oxo-morpholino group which may be substituted by 1 or 2 methyl groups,

a 2-oxo-morpholinyl group which is substituted in the 4 position by a hydrogen atom, by a C_{1-4}-alkyl, $R_6O\text{-}CO\text{-}C_{1-4}$-alkyl, $(R_7O\text{-}PO\text{-}OR_8)\text{-}C_{1-4}$-alkyl or $(R_7O\text{-}PO\text{-}R_9)\text{-}C_{1-4}$-alkyl group, while R_6 to R_9 are defined as in claim 1 and the abovementioned 2-oxo-morpholinyl groups are in each case linked to a carbon atom of the group F,

a morpholino or thiomorpholino group which is substituted in the 2 position by a C_{1-4}-alkoxy group,

a morpholino or thiomorpholino group which is substituted in the 2 and 6 position by a C_{1-4}-alkoxy group,

a C_{1-4}-alkyl-NR_5-group wherein the C_{1-4}-alkyl moiety, which is straight-chained and may additionally be substituted by one or two methyl groups, is in each case terminally substituted by a di-(C_{1-4}-alkoxy)-methyl or tri-(C_{1-4}-alkoxy)-methyl group, whilst R_5 is defined as in claim 1,

a C_{1-4}-alkyl-NR_5-group wherein the C_{1-4}-alkyl moiety, which is straight-chained and may additionally be substituted by one or two methyl groups, is terminally substituted in each case by a 1,3-dioxolan-2-yl or 1,3-dioxan-2-yl-group optionally substituted by one or two methyl groups, while R_5 is defined as in claim 1,

an R_hNR_5-group wherein R_5 is as hereinbefore defined and R_h denotes a 2-oxo-tetrahydrofuran-3-yl, 2-oxo-tetrahydrofuran-4-yl, 2-oxo-tetrahydropyran-3-yl, 2-oxo-tetrahydropyran-4-yl or 2-oxo-tetrahydropyran-5-yl group optionally substituted by one or two methyl groups,

whilst by the aryl moieties mentioned in the definitions of the abovementioned groups is meant a phenyl group which in each case may be monosubstituted by R_{12}, mono-, di- or tri-substituted by R_{13} or monosubstituted by R_{12} and additionally mono- or disubstituted by R_{13}, whilst the substituents may be identical or different and

R_{12} denotes a cyano, carboxy, C_{1-4}-alkoxycarbonyl, aminocarbonyl, C_{1-4}-alkylaminocarbonyl, di-(C_{1-4}-alkyl)-aminocarbonyl, C_{1-4}-alkylsulphenyl, C_{1-4}-alkylsulphinyl, C_{1-4}-alkylsulphonyl, hydroxy, C_{1-4}-alkylsulphonyloxy, trifluoromethyloxy, nitro, amino, C_{1-4}-alkylamino, di-(C_{1-4}-alkyl)-amino, C_{1-4}-alkylcarbonylamino, N-(C_{1-4}-alkyl)-C_{1-4}-alkylcarbonylamino, C_{1-4}-alkylsulphonylamino, N-(C_{1-4}-alkyl)-C_{1-4}-alkylsulphonylamino, aminosulphonyl, C_{1-4}-alkylaminosulphonyl or di-(C_{1-4}-alkyl)-aminosulphonyl group or a carbonyl group, which is substituted by a 5- to 7-membered alkyleneimino group, wherein in the abovementioned 6- to 7-membered alkyleneimino groups in each case a methylene group in the 4 position may be replaced by an oxygen or sulphur atom, by a sulphinyl, sulphonyl, imino or N-(C_{1-4}-alkyl)-imino group, and

R_{13} denotes a fluorine, chlorine, bromine or iodine atom, a C_{1-4}-alkyl, trifluoromethyl or C_{1-4}-alkoxy group or

two groups R_{13}, if they are bound to adjacent carbon atoms, together denote a C_{3-5}-alkylene, methylenedioxy or 1,3-butadien-1,4-ylene group,

and moreover, the heteroaryl groups mentioned in the definitions of the abovementioned groups also include a 5-membered

heteroaromatic group which contains an imino group, an oxygen or sulphur atom or an imino group, an oxygen or sulphur atom and one or two nitrogen atoms, or

a 6-membered heteroaromatic group which contains one, two or three nitrogen atoms,

Sub A3

whilst the abovementioned 5-membered heteroaromatic groups may be substituted in each case by 1 or 2 methyl or ethyl groups and the abovementioned 6-membered heteroaromatic groups may be substituted in each case by 1 or 2 methyl or ethyl groups or by a fluorine, chlorine, bromine or iodine atom, or by a trifluoromethyl, hydroxy, methoxy or ethoxy group,

the tautomers, the stereoisomers and the salts thereof.

13. Bicyclic heterocycles of general formula I according to claim 12, wherein

R_a to R_d, A to C and X are defined as in claim 2,

D together with E denotes a hydrogen atom,

a methyl, trifluoromethyl or aryl group,

F denotes an -O-C_{1-4}-alkylene group, wherein the alkylene moiety is linked to the group G, or an oxygen atom, while this may not be linked to a nitrogen atom of the group G, and

G denotes an R_6O-CO-alkylene-NR_5, (R_7O-PO-OR_8)-alkylene-NR_5 or (R_7O-PO-R_9)-alkylene-NR_5 group wherein in each case the alkylene moiety, which is straight-chained and contains 1 to 4 carbon atoms, may additionally be substituted by one or two C_{1-2}-alkyl groups or by an R_6O-CO or R_6O-CO-C_{1-2}-alkyl group, while R_5 to R_9 are defined as in claim 2,

a 4- to 7-membered alkyleneimino group which is substituted by an R_6O-CO, R_6O-CO-C_{1-4}-alkyl or bis-(R_6O-CO)-C_{1-4}-alkyl group wherein R_6 is defined as in claim 2,

a 4- to 7-membered alkyleneimino group which is substituted by two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups wherein R_6 is defined as in claim 2,

a piperazino or homopiperazino group which is substituted in the 4 position by the group R_{10} and is additionally substituted at a cyclic carbon atom by an R_6O-CO, R_6O-CO-C_{1-4}-alkyl or bis-(R_6O-CO)-C_{1-4}-alkyl group wherein R_6 and R_{10} are defined as in claim 2,

a piperazino or homopiperazino group which is substituted in the 4 position by the group R_{10} and is additionally substituted at cyclic carbon atoms by two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups wherein R_6 and R_{10} are defined as in claim 2,

a piperazino or homopiperazino group which is substituted in each case in the 4 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_9 are defined as in claim 2,

a piperazino or homopiperazino group which is substituted in the 4 position by an R_6O-CO-C_{1-4}-alkyl or bis-(R_6O-CO)-C_{1-4}-alkyl group and additionally at cyclic carbon atoms by one or two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups wherein R_6 is defined as in claim 2,

a morpholino or homomorpholino group which is substituted in each case by an R_6O-CO, R_6O-CO-C_{1-4}-alkyl or bis-(R_6O-CO)-C_{1-4}-alkyl group wherein R_6 is defined as in claim 2,

a morpholino or homomorpholino group which is substituted by two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups wherein R_6 is defined as in claim 2,

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by the group R_{10}, while the abovementioned 5- to 7-membered rings in each case are additionally substituted at a carbon atom by an R_6O-CO, R_6O-CO-C_{1-4}-alkyl or bis-(R_6O-CO)-C_{1-4}-alkyl group wherein R_6 and R_{10} are defined as in claim 2,

sub A3

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by the group R_{10}, while the abovementioned 5- to 7-membered rings in each case are additionally substituted at carbon atoms by two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups wherein R_6 and R_{10} are defined as in claim 2,

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl, (R_7O-PO-OR_8)-C_{1-4}-alkyl or (R_7O-PO-R_9)-C_{1-4}-alkyl group wherein R_6 to R_9 are defined as in claim 2,

a pyrrolidinyl, piperidinyl or hexahydroazepinyl group substituted in the 1 position by an R_6O-CO-C_{1-4}-alkyl or bis-(R_6O-CO)-C_{1-4}-alkyl group, while the abovementioned 5- to 7-membered rings in each case are additionally substituted at carbon atoms by one or two R_6O-CO or R_6O-CO-C_{1-4}-alkyl groups wherein R_6 is defined as in claim 2,

a 2-oxo-morpholino group which may be substituted by 1 or 2 methyl groups,

a 2-oxo-morpholinyl group which is substituted in the 4 position by a C_{1-4}-alkyl or R_6O-CO-C_{1-4}-alkyl group, while R_6 is defined as in claim 2 and the abovementioned 2-oxo-morpholinyl groups are each are linked to a carbon atom of the group F,

a morpholino group which is substituted in the 2 position by a C_{1-4}-alkoxy group,

a morpholino group which is substituted in the 2 and 6 positions in each case by a C_{1-4}-alkoxy group,

a C_{1-4}-alkyl-NR_5 group wherein the C_{1-4}-alkyl moiety, which is straight-chained, is terminally substituted by a di-(C_{1-4}-alkoxy)-methyl group, while R_5 is defined as in claim 2,

a C_{1-4}-alkyl-NR_5 group wherein the C_{1-4}-alkyl moiety, which is straight-chained, is terminally substituted by a 1,3-dioxolan-2-yl or 1,3-dioxan-2-yl group, while R_5 is defined as in claim 2,

a R_hNR_5 group wherein R_5 is defined as in claim 2 and R_h denotes a substituted 2-oxo-tetrahydrofuran-3-yl, 2-oxo-tetrahydrofuran-4-yl, 2-oxo-tetrahydropyran-3-yl, 2-oxo-tetrahydropyran-4-yl or 2-oxo-tetrahydropyran-5-yl group optionally by one or two methyl groups,

while the aryl moieties mentioned in the definition of the abovementioned groups denote a phenyl group which may in each case be monosubstituted by R_{12}, mono- or disubstituted by R_{13} or monosubstituted by R_{12} and additionally mono or disubstituted by R_{13}, while the substituents may be identical or different and

R_{12} denotes a cyano, C_{1-2}-alkoxycarbonyl, aminocarbonyl, C_{1-2}-alkylaminocarbonyl, di-(C_{1-2}-alkyl)-aminocarbonyl, C_{1-2}-alkylsulphenyl, C_{1-2}-alkylsulphinyl, C_{1-2}-alkylsulphonyl, hydroxy, nitro, amino, C_{1-2}-alkylamino or di-(C_{1-2}-alkyl)-amino group and

R_{13} denotes a fluorine, chlorine, bromine or iodine atom, a C_{1-2}-alkyl, trifluoromethyl or C_{1-2}-alkoxy group or

two groups R_{13}, if they are bound to adjacent carbon atoms, together denote a C_{3-5}-alkylene, methylenedioxy or 1,3-butadien-1,4-ylene group,

the tautomers, the stereoisomers and the salts thereof.

14. Bicyclic heterocycles of general formula I according to claim 12, wherein

Sub A3

R_a to R_d, A to C and X are defined as in claim 3,

D together with E denotes a hydrogen atom,

a methyl, trifluoromethyl or aryl group,

F denotes an -O-C_{1-4}-alkylene group, wherein the alkylene moiety is linked to the group G, or an oxygen atom, while this may not be linked to a nitrogen atom of the group G, and

G denotes an R_6O-CO-alkylene-NR_5 group wherein the alkylene moiety, which is straight-chained and contains 1 to 4 carbon atoms, may additionally be substituted by one or two C_{1-2}-alkyl groups or by an R_6O-CO or R_6O-CO-C_{1-2}-alkyl group, while R_5 and R_6 are defined as in claim 3,

a pyrrolidino or piperidino group which is substituted by an R_6O-CO or R_6O-CO-C_{1-2}-alkyl group wherein R_6 is defined as in claim 3,

a pyrrolidino or piperidino group which is substituted by two R_6O-CO or R_6O-CO-C_{1-2}-alkyl groups wherein R_6 is defined as in claim 3,

a piperazino group which is substituted in the 4 position by the group R_{10} and additionally at a cyclic carbon atom by an R_6O-CO, or R_6O-CO-C_{1-2}-alkyl group, while R_6 and R_{10} are defined as in claim 3,

a piperazino group which is substituted in the 4 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl or (R_7O-PO-OR_8)-C_{1-2}-alkyl group wherein R_6 to R_8 are defined as in claim 3,

a piperazino group which is substituted in the 4 position by an R_6O-CO-C_{1-2}-alkyl group and additionally at a cyclic carbon atom by an R_6O-CO or R_6O-CO-C_{1-2}-alkyl group wherein R_6 is defined as in claim 3,

a morpholino group which is substituted by an R_6O-CO or R_6O-CO-C_{1-2}-alkyl group, while R_6 is defined as in claim 3,

a piperidinyl group substituted in the 1 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl or (R_7O-PO-OR_8)-C_{1-2}-alkyl group wherein R_6 to R_8 are defined as in claim 3,

a 2-oxo-morpholino group which may be substituted by 1 or 2 methyl groups,

a 2-oxo-morpholinyl group which is substituted in the 4 position by a methyl, ethyl or R_6O-CO-C_{1-2}-alkyl group, while R_6 is defined as in claim 3 and the abovementioned 2-oxo-morpholinyl groups in each case are linked to a carbon atom of the group F,

a morpholino group which is substituted in the 2 position by a methoxy or ethoxy group,

a morpholino group which is substituted in the 2 and 6 positions in each case by a methoxy or ethoxy group,

a 2,2-dimethoxyethyl-NR_5, 2,2-diethoxyethyl-NR_5, 1,3-dioxolan-2-yl-methyl-NR_5 or 1,3-dioxan-2-yl-methyl-NR_5 group wherein R_5 is defined as in claim 3,

while the aryl moieties mentioned in the definition of the abovementioned groups denote a phenyl group which may be mono- or disubstituted by R_{13}, while the substituents may be identical or different and

R_{13} denotes a fluorine, chlorine, bromine or iodine atom, a C_{1-2}-alkyl, trifluoromethyl or C_{1-2}-alkoxy group or

two groups R_{13}, if they are bound to adjacent carbon atoms, together denote a C_{3-4}-alkylene, methylenedioxy or 1,3-butadien-1,4-ylene group,

the tautomers, the stereoisomers and the salts thereof.

15. Bicyclic heterocycles of general formula I according to claim 12, wherein

R_a to R_d, A to C and X are defined as in claim 4,

D together with E denotes a hydrogen atom or a methyl group,

F denotes an -O-C_{1-4}-alkylene group, while the alkylene moiety is linked to the group G, or an oxygen atom, which may not be linked to a nitrogen atom of the group G, and

G denotes an R_6O-CO-alkylene-NR_5 group wherein the alkylene moiety, which is straight-chained and contains 1 or 2 carbon atoms, may additionally be substituted by a methyl group or by an R_6O-CO or R_6O-CO-methyl group, while R_5 and R_6 are defined as in claim 4,

a pyrrolidino or piperidino group which is substituted by an R_6O-CO or R_6O-CO-methyl group wherein R_6 is defined as in claim 4,

a pyrrolidino or piperidino group which is substituted by two R_6O-CO or R_6O-CO-methyl groups wherein R_6 is defined as in claim 4,

a piperazino group which is substituted in the 4 position by an R_6O-CO-C_{1-4}-alkyl, bis-(R_6O-CO)-C_{1-4}-alkyl or (R_7O-PO-OR_8)-C_{1-2}-alkyl group wherein R_6 to R_8 are defined as in claim 4,

Sub A3

a piperidinyl group substituted in the 1 position by an R_6O-CO-C_{1-2}-alkyl group wherein R_6 is defined as in claim 4,

the tautomers, the stereoisomers and the salts thereof.

16. Bicyclic heterocycles of general formula I according to at least one of claims 12 to 15, characterised in that R_b denotes one of the optionally substituted 1-phenyl-ethyl groups mentioned in the respective claim 12, 13, 14 or 15,

the tautomers, the stereoisomers and the salts thereof.

17. The following compounds of general formula I according to claim 1:

(a) 4-[(3-bromophenyl)amino]-7-(3-{4-[(ethoxycarbonyl)methyl]-piperazin-1-yl}propyloxy)-6-[(vinylcarbonyl)amino]-quinazoline,

(b) 4-[(3-bromophenyl)amino]-7-(3-{4-[3-(ethoxycarbonyl)propyl]-piperazin-1-yl}propyloxy)-6-[(vinylcarbonyl)amino]-quinazoline,

(c) 4-[(3-bromophenyl)amino]-7-({1-[(ethoxycarbonyl)methyl]-piperidin-4-yl}oxy)-6-[(vinylcarbonyl)amino]-quinazoline,

(d) 4-[(3-bromophenyl)amino]-7-(3-{4-[(diethoxyphosphoryl)-methyl]-piperazin-1-yl}propyloxy)-6-[(vinylcarbonyl)amino]-quinazoline,

(e) 4-[(3-bromophenyl)amino]-7-(3-{N-[(ethoxycarbonyl)methyl]-N-methylamino}propyloxy)-6-[(vinylcarbonyl)amino]-quinazoline,

(f) 4-[(3-bromophenyl)amino]-6-[(4-{N-[(ethoxycarbonyl)methyl]-N-methylamino}-1-oxo-2-buten-1-yl)amino]-quinazoline,

Sub A3

(g) 4-[(3-bromophenyl)amino]-6-[(4-{N-[(diethoxyphosphoryl)methyl]-N-methylamino}-1-oxo-2-buten-1-yl)amino]-7-methoxy-quinazoline,

(h) (*R*)-4-[(1-phenylethyl)amino]-6-[(4-{N-[(ethoxycarbonyl)methyl]-N-methylamino}-1-oxo-2-buten-1-yl)amino]-7-methoxy-quinazoline,

(i) 4-[(3-bromophenyl)amino]-6-({4-[N-(2,2-dimethoxyethyl)-N-methylamino]-1-oxo-2-buten-1-yl}amino)-7-methoxy-quinazoline,

(j) 4-[(3-bromophenyl)amino]-6-{[4-(2-ethoxy-morpholin-4-yl)-1-oxo-2-buten-1-yl]amino}-7-methoxy-quinazoline,

(k) 4-[(3-bromophenyl)amino]-3-cyano-6-[(4-{N-[(ethoxycarbonyl)methyl]-N-methylamino}-1-oxo-2-buten-1-yl)amino]-quinoline,

(l) 4-[(3-chloro-4-fluorophenyl)amino]-6-[(4-{4-[(ethoxycarbonyl)methyl]-piperazin-1-yl}-1-oxo-2-buten-1-yl)amino]-7-cyclopropylmethoxy-quinazoline,

(m) 4-[(3-chloro-4-fluorophenyl)amino]-6-[(4-{N-[2-(ethoxycarbonyl)-ethyl]-N-[(ethoxycarbonyl)methyl]amino}-1-oxo-2-buten-1-yl)amino]-7-cyclopropylmethoxy-quinazoline,

(n) 4-[(3-chloro-4-fluorophenyl)amino]-6-{[4-(2-oxo-morpholin-4-yl)-1-oxo-2-buten-1-yl]amino}-7-cyclopropylmethoxy-quinazoline,

(o) 4-[(3-chloro-4-fluorophenyl)amino]-6-[(4-{4-[(ethoxycarbonyl)methyl]-piperazin-1-yl}-1-oxo-2-buten-1-yl)amino]-7-cyclobutyloxy-quinazoline,

(p) 4-[(3-chloro-4-fluorophenyl)amino]-6-[(4-{4-[(ethoxycarbonyl)methyl]-piperazin-1-yl}-1-oxo-2-buten-1-yl)amino]-7-(2-cyclopropylethoxy)-quinazoline,

(q) (*S*)-4-[(3-chloro-4-fluorophenyl)amino]-6-({4-[2-(methoxycarbonyl)-pyrrolidin-1-yl]-1-oxo-2-buten-1-yl}amino)-7-cyclopropylmethoxy-quinazoline,

(r) 4-[(3-chloro-4-fluorophenyl)amino]-6-[(4-{N-[(ethoxycarbonyl)methyl]-N-[2-(acetylsulphanyl)ethyl]amino}-1-oxo-2-buten-1-yl)amino]-7-cyclopropylmethoxy-quinazoline,

(s) 4-[(3-chloro-4-fluorophenyl)amino]-6-[(4-{N-[(ethoxycarbonyl)-methyl]-N-[2-(methylcarbonyloxy)ethyl]amino}-1-oxo-2-buten-1-yl)amino]-7-cyclopropylmethoxy-quinazoline,

(t) 4-[(3-chloro-4-fluorophenyl)amino]-6-{[4-(5,5-dimethyl-2-oxo-morpholin-4-yl)-1-oxo-2-buten-1-yl]amino}-7-cyclo-propylmethoxy-quinazoline and

(u) 4-[(3-chloro-4-fluorophenyl)amino]-6-{[4-(5-methyl-2-oxo-morpholin-4-yl)-1-oxo-2-buten-1-yl]amino}-7-cyclopropylmethoxy-quinazoline

and the salts thereof.

18. Physiologically acceptable salts of the compounds according to at least one of claims 1 to 17 with inorganic or organic acids or bases.

19. Pharmaceutical compositions containing a compound according to at least one of claims 1 to 17 or a physiologically accep-

table salt according to claim 18 optionally together with one or more inert carriers and/or diluents.

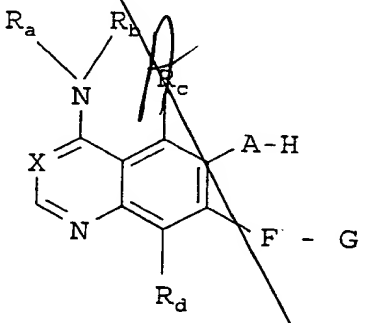
Sub A3

20. Use of a compound according to at least one of claims 1 to 18 for preparing a pharmaceutical composition which is suitable for treating benign or malignant tumours, for preventing and treating diseases of the airways and lungs and for treating polyps, diseases of the gastrointestinal tract, the bile duct and gall bladder and also the kidneys and skin.

21. Process for preparing a pharmaceutical composition according to claim 19, characterised in that a compound according to at least one of claims 1 to 18 is incorporated in one or more inert carriers and/or diluents by a non-chemical method.

22. Process for preparing the compounds of general formula I according to claims 1 to 18, characterised in that

a) a compound of general formula



, (II)

wherein

R_a to R_d, A, F, G and X are defined as in claims 1 to 17, is reacted with a compound of general formula

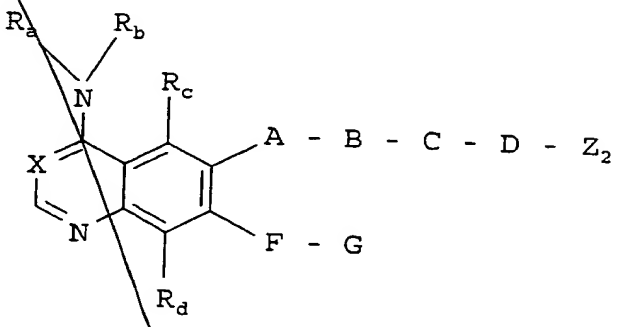
$$Z_1 - B - C - D - E \quad , (III)$$

wherein

B to E are defined as in claims 1 to 17 and

Z_1 denotes a leaving group or a hydroxy group, or

b) in order to prepare compounds of general formula I wherein the group E is linked to the group D via a nitrogen atom, a compound of general formula



, (IV)

wherein

R_a to R_d, A to D, F, G and X are defined as in claims 1 to 17 and

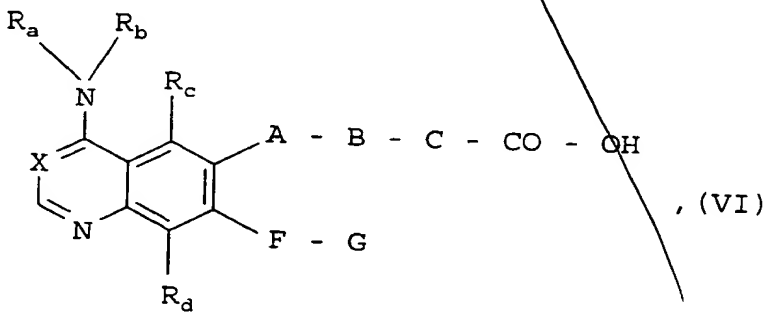
Z_2 denotes a leaving group or a hydroxy group, is reacted with a compound of general formula

, (V)

wherein

Y denotes one of the groups mentioned for E in claims 1 to 17, which is linked to the group D via a nitrogen atom, or

c) for preparing compounds of general formula I wherein D together with E denotes an $R_gCO\text{-}O\text{-}(R_eCR_f)\text{-}O\text{-}CO\text{-}$ group, a compound of general formula



, (VI)

wherein
R_a to R_d, A to C, F, G and X are defined as in claims 1 to 17, is reacted with a compound of general formula

$$R_gCO\text{-}O\text{-}(R_eCR_f)\text{-}Z_3 \quad , (VII)$$

wherein
R_e to R_g are defined as in claims 1 to 17 and
Z_3 denotes a leaving group or

d) for preparing compounds of general formula I wherein E or G denotes a piperazino or homopiperazino group each substituted in position 4 by an $R_6O\text{-}CO\text{-}C_{1\text{-}4}$-alkyl group wherein R_6 is defined as in claims 1 to 17, a corresponding compound containing a piperazino or homopiperazino group each unsubstituted in position 4 is reacted with a compound of general formula

$$R_6O\text{-}CO\text{-}C_{1\text{-}4}\text{-alkyl-}Z_4 \quad (VIII),$$

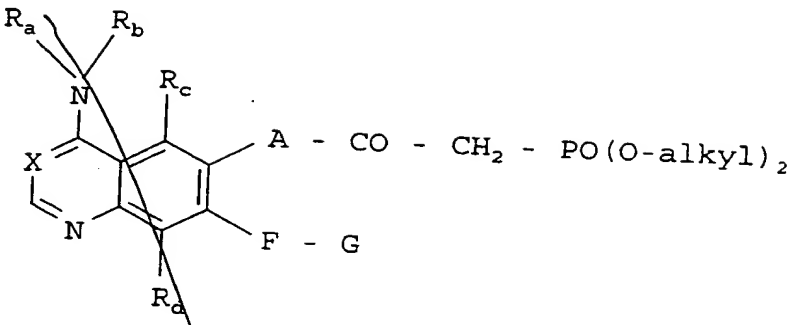
wherein
R_6 is defined as in claims 1 to 17 and
Z_4 denotes a leaving group, or

e) for preparing compounds of general formula I wherein E or G denotes a piperazino or homopiperazino group each substituted in position 4 by an $R_6O\text{-}CO\text{-}CH_2CH_2$-group wherein R_6 is defined as in claims 1 to 17, a corresponding compound containing a piperazino or homopiperazino group each unsubstituted in position 4 is reacted with a compound of general formula

$$R_6O\text{-}CO\text{-}CH{=}CH_2, \quad (IX),$$

wherein
R_6 is defined as in claims 1 to 17, or

f) for preparing compounds of general formula I wherein C denotes a 1,2-vinylene group, a compound of general formula



, (X)

wherein
R_a to R_d, A, F, G and X are defined as in claims 1 to 17 and alkyl denotes a lower alkyl group, is reacted with a compound of general formula

OCH-D-E (XI),

wherein
D and E are defined as in claims 1 to 17, and

if desired a compound of general formula I thus obtained which contains a hydroxy, amino, alkylamino or imino group is converted by acylation or sulphonylation into a corresponding acylamino, N-alkyl-acylamino, acyl-imino, sulphonyloxy, sulphonylamino, N-alkyl-sulphonylamino or sulphonyl-imino compound, whilst a sulphonyloxy compound thus obtained may be converted into a corresponding sulphenyl compound by reaction with an alkali metal salt of a thio compound, and/or

a compound of general formula I thus obtained which contains an amino, alkylamino or imino group is converted by alkylation or reductive alkylation into a corresponding alkyl compound of general formula I, and/or

a compound of general formula I thus obtained wherein E denotes a bis-[2,2-di-(C_{1-4}-alkoxy)ethyl]amino group may be converted by intramolecular cyclisation into a corresponding morpholino compound of general formula I, and/or

a compound of general formula I thus obtained wherein E or G denotes an optionally substituted N-(2-hydroxyethyl)-glycine or N-(2-hydroxyethyl)-glycine ester group may be converted by intramolecular cyclisation into a corresponding 2-oxo-morpholino compound, and/or

a compound of general formula I thus obtained which contains a carboxy or hydroxyphosphoryl group may be converted by alkylation into a corresponding ester of general formula I, and/or

if necessary any protecting group used during the reactions described above is cleaved again and/or

if desired a compound of general formula I thus obtained is resolved into the stereoisomers thereof and/or

a compound of general formula I thus obtained is converted into the salts thereof, particularly for pharmaceutical use into the physiologically acceptable salts thereof.